COST REPORTS

OF THE

FEDERAL TRADE COMMISSION

COAL

No. 7

TRANS-MISSISSIPPI STATES—BITUMINOUS

JUNE 30, 1919.

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FEDERAL TRADE COMMISSION.

William B. Colver, Chairman.
John Franklin Fort.
Victor Murdock.
Huston Thompson.
J. P. Yoder, Secretary.

LETTER OF SUBMITTAL.

FEDERAL TRADE COMMISSION,
Washington, June 30, 1919.

TO THE CONGRESS OF THE UNITED STATES:

The Federal Trade Commission herewith submits a report on the cost of producing bituminous coal in the States of Iowa, Kansas, Missouri, Arkansas, Oklahoma, Texas, Colorado, New Mexico, Montana, Wyoming, Utah, Washington, and North Dakota. This report gives cost information obtained by the commission at the direction of the President and in aid of the United States Fuel Administration. The preparation and issue of this report was authorized by resolution of the commission on June 30, 1919, and the report is therefore issued as of that date. The compilation of the data, which were already on file, and the preparation of the report were subsequent thereto.

For the year 1918 the data herewith set forth cover the operations of 394 operators who mined about 61,000,000 net tons from 628 mines, and for the years 1916 and 1917 the operations of 27 operators who mined about 4,600,000 net tons annually.

This report is the seventh of the series on the cost of producing coal, report No. 1 having covered the production of bituminous coal in Pennsylvania; Report No. 2 the production of anthracite coal in Pennsylvania; Report No. 3 the production of bituminous coal in Illinois; Report No. 4 the production of bituminous coal in Alabama, Tennessee, and Kentucky; Report No. 5 the production of bituminous coal in Ohio, Indiana, and Michigan; and Report No. 6 the production of bituminous coal in Maryland, West Virginia, and Virginia. The production of Pennsylvania in 1918 formed about 30 per cent of the total annual output of bituminous coal in the United States; of Illinois, about 15 per cent; of Alabama, Tennessee, and Kentucky, about 10 per cent; of Ohio, Indiana, and Michigan, about 13 per cent; of Maryland, West Virginia, and Virginia, about 18 per cent; of the States covered in this report (Iowa, Kansas, Missouri, Arkansas, Oklahoma, Texas, Colorado, New Mexico, Montana, Wyoming, Utah, Washington, and North Dakota), about 14 per cent. In Report No. 2 about 99 per cent of the entire anthracite output in the country was covered. Excluding the production of Georgia, which is shown in Report No. 4 combined with the Alabama figures, there were five other States and Alaska which produced in 1918 a total of about 100,000 tons. Reports Nos. 1 to 7 therefore cover the

States which produce substantially all of the coal mined in the United States.

In this report are shown the total f. o. b. mine cost (with its three major subdivisions of labor cost, supplies cost, and general expense, which includes royalty and depletion), the sales realization received by the operators, and the margin between it and the total f. o. b. mine cost. From this margin would have to be paid sales expense (where any was incurred), interest, and Federal taxes, the remainder being available for surplus and dividends. It must not be supposed that such margins were all clear profit to the operators. The commission's revised cost figures exclude any charges for interest, income and excess profits taxes, donations, etc., which are expenditures that, while not entering into operating cost, must be met from the margin, nor is there any allowance in the total f. o. b. mine cost for the expense of selling the coal.

All costs and sales realizations shown are based on tons of 2,000 pounds.

The costs and sales realizations are shown for each quarter of 1918 and the year as a whole for each of the 27 producing districts in the 13 principal coal-producing trans-Mississippi States. The producing districts are those defined by the United States Fuel Administration in various price-fixing orders. The location of these districts is indicated on maps in the report. They do not correspond with the districts established by the States for the inspectors of mining conditions. All operations fully reported are shown in the following tables, and they produced about 92 per cent of the output for Iowa in 1918, 88 per cent of that for Kansas, 74 per cent of that for Missouri, 74 per cent of that for Arkansas, 87 per cent of that for Oklahoma, 48 per cent of that for Texas, 94 per cent of that for Colorado, 97 per cent of that for New Mexico, 95 per cent of that for Montana, 95 per cent of that for Wyoming, 95 per cent of that for Utah, 90 per cent of that for Washington, and 54 per cent of that for North Dakota:

TABLE A.—*1918 costs and sales realizations per ton for 394 operators who mined about 61,000,000 tons in 13 trans-Mississippi coal-producing States.*

State and district.	Costs per ton.				Sales realization per ton.	Margin per ton.
	Labor.	Supplies.	General expense.	Total f. o. b. mine.		
IOWA.						
Marion-Monroe-Polk:						
January-March	$2.03	$0.18	$0.27	$2.48	$2.89	$0.41
April-June	2.21	.23	.30	2.74	2.86	.12
July-September	2.24	.21	.28	2.73	2.98	.25
October-December	2.24	.24	.32	2.80	3.20	.40
Year	2.17	.22	.29	2.68	2.98	.30
Production for year	5,544,180 tons.					

TABLE A.—*1918 costs and sales realizations per ton for 394 operators who mined about 61,000,000 tons in 13 trans-Mississippi coal-producing States*—Con.

State and district.	Costs per ton.				Sales realization per ton.	Margin per ton.
	Labor.	Supplies.	General expense.	Total f. o. b. mine.		
IOWA—continued.						
Appanoose-Boone:						
January-March	$2.39	$0.17	$0.27	$2.83	$3.30	$0.47
April-June	2.53	.22	.34	3.09	3.32	.23
July-September	2.43	.23	.28	2.94	3.31	.37
October-December	2.62	.28	.32	3.22	3.35	.13
Year	2.48	.22	.30	3.00	3.32	.32
Production for year	1,826,786 tons.					
KANSAS.						
Cherokee-Crawford:						
January-March	1.94	.19	.32	2.45	2.84	.39
April-June	1.95	.19	.32	2.46	2.86	.40
July-September	1.97	.22	.31	2.50	2.94	.44
October-December	2.15	.30	.37	2.82	2.97	.15
Year	2.00	.22	.33	2.55	2.90	.35
Production for year	6,280,374 tons.					
Osage and Leavenworth (combined):						
January-March	2.74	.23	.41	3.38	3.80	.42
April-June	2.88	.19	.40	3.47	3.79	.32
July-September	3.00	.26	.43	3.69	3.90	.21
October-December	3.25	.22	.51	3.98	3.94	[1] .04
Year	2.96	.23	.43	3.62	3.86	.24
Production for year	174,126 tons.					
MISSOURI.						
No. 1:						
January-March	1.75	.24	.37	2.36	2.91	.55
April-June	1.74	.27	.41	2.42	2.84	.42
July-September	1.77	.32	.39	2.48	2.94	.56
October-December	1.94	.39	.49	2.82	3.04	.22
Year	1.80	.30	.41	2.51	2.93	.42
Production for year	2,033,861 tons.					
No. 2:						
January-March	2.27	.21	.26	2.74	3.08	.34
April-June	2.32	.24	.29	2.85	3.07	.22
July-September	2.46	.28	.29	3.03	3.35	.32
October-December	2.52	.27	.33	3.12	3.44	.32
Year	2.39	.25	.28	2.92	3.23	.31
Production for year	2,044,226 tons.					
ARKANSAS.						
Sebastian:						
January-March	2.01	.17	.27	2.45	2.87	.42
April-June	2.06	.23	.29	2.58	3.02	.44
July-September	2.18	.27	.28	2.73	3.53	.80
October-December	2.37	.32	.34	3.03	3.77	.74
Year	2.14	.25	.29	2.68	3.27	.59
Production for year	1,433,539 tons.					
Excelsior-Logan:						
January-March	3.06	.23	.49	3.78	4.36	.58
April-June	3.40	.34	.61	4.35	4.52	.17
July-September	3.67	.45	.52	4.64	4.72	.08
October-December	3.71	.75	.59	5.05	4.77	[1] .28
Year	3.47	.43	.55	4.45	4.60	.15
Production for year	67,458 tons.					

[1] Amount by which the total f. o. b. mine cost exceeded the sales realization.

TABLE A.—*1918 costs and sales realizations per ton for 394 operators who mined about 61,000,000 tons in 13 trans-Mississippi coal-producing States*—Con.

State and district.	Costs per ton.				Sales realization per ton.	Margin per ton.
	Labor.	Supplies.	General expense.	Total f. o. b. mine.		
ARKANSAS—continued.						
Anthracite:						
January-March	$2.77	$0.11	$0.51	$3.39	$4.02	0$.63
April-June	3.36	.35	.65	4.36	3.85	[1] .51
July-September	3.34	.22	.45	4.01	5.14	1.13
October-December	3.55	.33	.58	4.46	5.15	.69
Year	3.23	.23	.52	3.98	4.66	.68
Production for year	100,055 tons.					
OKLAHOMA.						
McAlester Vein:						
January-March	3.06	.38	.33	3.77	4.35	.58
April-June	3.08	.44	.34	3.86	4.22	.36
July-September	3.05	.45	.35	3.85	4.50	.65
October-December	3.28	.57	.41	4.26	4.64	.38
Year	3.11	.45	.36	3.92	4.42	.50
Production for year	688,986 tons.					
Eastern:						
January-March	2.41	.23	.30	2.94	3.33	.39
April-June	2.42	.26	.33	3.01	3.33	.32
July-September	2.48	.28	.33	3.09	3.61	.52
October-December	2.65	.33	.47	3.45	3.87	.42
Year	2.49	.27	.35	3.11	3.53	.42
Production for year	3,338,110 tons.					
TEXAS.						
Bituminous:						
January-March	2.54	.34	.35	3.23	3.76	.53
April-June	2.86	.38	.43	3.67	3.83	.16
July-September	2.92	.43	.37	3.72	4.20	.48
October-December	3.15	.48	.51	4.14	4.69	.55
Year	2.86	.41	.41	3.68	4.12	.44
Production for year	253,785 tons.					
Lignite:						
January-March	.68	.07	.21	.96	1.19	.23
April-June	.73	.09	.23	1.05	1.21	.16
July-September	.80	.09	.23	1.12	1.47	.35
October-December	.85	.10	.25	1.20	1.55	.35
Year	.76	.09	.23	1.08	1.36	.28
Production for year	806,278 tons.					
COLORADO.						
Domestic:						
January-March	1.74	.24	.37	2.35	3.07	.72
April-June	1.71	.24	.36	2.31	2.76	.45
July-September	1.73	.26	.36	2.35	3.01	.66
October-December	1.85	.36	.43	2.64	3.00	.36
Year	1.75	.27	.38	2.40	2.96	.56
Production for year	5,427,628 tons.					
Trinidad:						
January-March	1.60	.22	.33	2.15	2.54	.39
April-June	1.61	.26	.35	2.22	2.47	.25
July-September	1.61	.26	.37	2.24	2.44	.20
October-December	1.69	.32	.40	2.41	2.52	.11
Year	1.62	.26	.37	2.25	2.49	.24
Production for year	3,750,677 tons.					

[1] Amount by which the total f. o. b. mine cost exceeded the sales realization.

TABLE A.—*1918 costs and sales realizations per ton for 394 operators who mined about 61,000,000 tons in 13 trans-Mississippi coal-producing States*—Con.

State and district.	Costs per ton.				Sales realization per ton.	Margin per ton.
	Labor.	Supplies.	General expense.	Total f. o. b. mine.		
COLORADO—continued.						
Lignite:						
January-March	$1.39	$0.18	$0.37	$1.94	$2.60	$0.66
April-June	1.52	.22	.45	2.19	2.38	.19
July-September	1.56	.24	.40	2.20	2.47	.27
October-December	1.50	.22	.41	2.13	2.34	.21
Year	1.49	.21	.40	2.10	2.46	.36
Production for year	2,194,860 tons.					
NEW MEXICO.						
Gallup and Sugarite (combined):						
January-March	2.31	.34	.50	3.15	2.82	[1] .33
April-June	2.20	.31	.52	3.03	2.93	[1] .10
July-September	2.20	.29	.48	2.97	3.58	.61
October-December	2.37	.33	.62	3.32	3.65	.33
Year	2.26	.32	.53	3.11	3.31	.20
Production for year	758,482 tons.					
Carthage and Cerrillos (combined):						
January-March	2.58	.49	.52	3.59	4.19	.60
April-June	2.63	.56	.50	3.69	4.08	.39
July-September	2.67	.60	.55	3.82	4.16	.34
October-December	2.67	.62	.60	3.89	4.35	.46
Year	2.64	.56	.54	3.74	4.20	.46
Production for year	151,850 tons.					
Raton:						
January-March	1.36	.19	.23	1.78	2.60	.82
April-June	1.36	.23	.23	1.82	2.64	.82
July-September	1.39	.24	.21	1.84	3.08	1.24
October-December	1.43	.26	.27	1.96	3.07	1.11
Year	1.39	.22	.24	1.85	2.83	.98
Production for year	2,969,068 tons.					
MONTANA.						
January-March	1.78	.23	.21	2.22	2.54	.32
April-June	1.80	.25	.22	2.27	2.47	.20
July-September	1.76	.24	.21	2.21	2.59	.38
October-December	1.81	.32	.22	2.35	2.61	.26
Year	1.79	.25	.22	2.26	2.56	.30
Production for year	4,134,686 tons.					
WYOMING.						
January-March	1.33	.20	.21	1.74	2.31	.57
April-June	1.41	.24	.23	1.88	2.21	.33
July-September	1.42	.24	.22	1.88	2.43	.55
October-December	1.43	.29	.23	1.95	2.63	.68
Year	1.40	.24	.22	1.86	2.41	.55
Production for year	8,714,679 tons.					
UTAH.						
January-March	1.44	.25	.31	2.00	2.63	.63
April-June	1.44	.25	.32	2.01	2.68	.67
July-September	1.44	.26	.33	2.03	2.96	.93
October-December	1.60	.34	.39	2.33	2.81	.48
Year	1.48	.27	.34	2.09	2.78	.69
Production for year	4,801,681 tons.					

[1] Amount by which the total f. o. b. mine cost exceeded the sales realization.

TABLE A.—*1918 costs and sales realizations per ton for 394 operators who mined about 61,000,000 tons in 13 trans-Mississippi coal-producing States*—Con.

State and district.	Costs per ton.				Sales realization per ton.	Margin per ton.
	Labor.	Supplies.	General expense.	Total f. o. b. mine.		
WASHINGTON.						
Kittitas bituminous:						
January-March	$1.93	$0.20	$0.22	$2.35	$3.08	$0.73
April-June	1.87	.25	.23	2.35	3.10	.75
July-September	1.85	.25	.24	2.34	3.06	.72
October-December	1.95	.22	.26	2.43	3.07	.64
Year	1.90	.23	.24	2.37	3.08	.71
Production for year	1,661,772 tons.					
Pierce-King bituminous:						
January-March	2.69	.44	.49	3.62	4.29	.67
April-June	2.76	.43	.56	3.75	4.29	.54
July-September	2.71	.40	.54	3.65	4.44	.79
October-December	2.82	.45	.58	3.85	4.43	.58
Year	2.75	.43	.53	3.71	4.36	.65
Production for year	1,001,975 tons.					
Subbituminous:						
January-March	2.01	.35	.30	2.66	3.37	.71
April-June	2.02	.38	.33	2.73	3.17	.44
July-September	2.15	.41	.36	2.92	3.16	.24
October-December	2.22	.43	.37	3.02	3.23	.21
Year	2.10	.39	.34	2.83	3.24	.41
Production for year	832,906 tons.					
NORTH DAKOTA.						
Southern:						
January-March	1.24	.08	.20	1.52	1.91	.39
April-June	1.45	.10	.32	1.87	1.92	.05
July-September	1.35	.08	.25	1.68	2.06	.38
October-December	1.36	.10	.19	1.65	2.40	.75
Year	1.33	.09	.23	1.65	2.10	.45
Production for year	313,038 tons.					
Northern:						
January-March	1.55	.14	.40	2.09	2.71	.62
April-June	1.73	.19	.59	2.51	2.53	.02
July-September	1.64	.22	.40	2.26	2.66	.40
October-December	1.61	.24	.33	2.18	2.87	.69
Year	1.62	.20	.41	2.23	2.72	.49
Production for year	67,637 tons.					

For this production of about 61,000,000 tons the average annual total f. o. b. mine costs ranged by districts from $1.08 to $4.45, and the average sales realization, $1.36 to $4.66 per ton.

Returns were also received for a less period than 12 months from 112 operators in the various districts who had an estimated total annual production of about 5,500,000 tons. Examination of such returns shows that had it been possible to secure reports for the whole 12 months, the annual averages shown in the foregoing table would not be changed more than 1 or 2 cents per ton, if at all. Including these mines, the production fully or partially reported covered about 94 per cent of the total 1918 output of the 13 States.

An analysis made for each district brings out clearly the lower cost of production of the thicker seams mined, particularly in the item of labor. This has an important bearing in forecasting the effect which a change in the wage scale has on the cost of mines operating in seams of different thicknesses in a given field.

Average costs and sales realizations of 27 operators in Iowa, Oklahoma, and Montana, mining about 4,600,000 tons annually, are shown below for various significant periods between January 1, 1916, and December 31, 1918. The periods are so selected as to make possible the analyses of the effects brought about through various changes in the wage scales and in established maximum prices. They are not necessarily uniform for the different districts.

TABLE B.—*Revised costs and sales realizations per ton of two operators who produced about 550,000 tons annually in the Marion-Monroe-Polk district of Iowa during 1916–1918.*

Period.	Costs per ton.				Sales realization per ton.	Margin per ton.
	Labor.	Supplies.	General expense.	Total f. o. b. mine.		
April-October, 1916	$1.54	$0.16	$0.21	$1.91	$1.93	$0.02
November, 1916-March, 1917	1.40	.15	.17	1.72	2.08	.36
April-August, 1917	1.64	.20	.19	2.03	2.24	.21
September-October, 1917	1.70	.20	.21	2.11	2.41	.30
November, 1917-March, 1918	2.00	.19	.25	2.44	2.92	.48
April-May, 1918	2.24	.27	.36	2.87	3.03	.16
June-December, 1918	2.06	.24	.34	2.64	3.05	.41

TABLE C.—*Revised costs and sales realizations per ton of 15 operators who produced about 1,800,000 tons annually in the McAlester Vein and the Eastern districts of Oklahoma during 1916–1918.*

Period.	Costs per ton.				Sales realization per ton.	Margin per ton.
	Labor.	Supplies.	General expense.	Total f. o. b. mine.		
McAlester Vein district:						
Year 1916	$2.03	$0.26	$0.43	$2.72	$2.93	$0.21
January-March, 1917	2.16	.23	.40	2.79	3.60	.81
April-August, 1917	2.36	.25	.38	2.99	3.62	.63
September, 1917	2.52	.26	.42	3.20	2.86	[1] .34
October, 1917	2.45	.35	.37	3.17	3.44	.27
November, 1917	2.96	.35	.38	3.69	3.85	.16
December, 1917-March, 1918	3.04	.40	.35	3.79	4.30	.51
April, 1918	3.03	.48	.33	3.84	4.25	.41
May, 1918	3.10	.39	.34	3.83	4.16	.33
June, 1918	3.09	.59	.34	4.02	4.24	.22
July, 1918	2.92	.44	.31	3.67	4.38	.71
August-December, 1918	3.18	.52	.38	4.08	4.58	.50
Eastern district:						
Year 1916	1.70	.16	.28	2.14	2.11	[1] .03
January-March, 1917	1.82	.18	.27	2.27	2.27	.00
April-August, 1917	2.04	.24	.28	2.56	2.63	.07
September, 1917	2.20	.25	.30	2.75	2.49	[1] .26
October, 1917	2.05	.27	.26	2.58	2.63	.05
November, 1917	2.65	.37	.31	3.33	3.02	[1] .31
December, 1917-March, 1918	2.57	.23	.29	3.09	3.39	.30
April, 1918	2.50	.29	.27	3.06	3.20	.14
May, 1918	2.48	.21	.31	3.00	3.44	.44
June, 1918	2.67	.27	.30	3.24	3.46	.22
July, 1918	2.62	.29	.29	3.20	3.54	.34
August-December, 1918	2.69	.29	.31	3.29	3.81	.52

[1] Amount by which the total f. o. b. mine cost exceeded the sales realization.

TABLE D.—*Revised costs and sales realizations per ton of 10 operators who produced about 2,250,000 tons annually in Montana during 1916–1918.*

Period.	Costs per ton.				Sales Realization per ton.	Margin per ton.
	Labor.	Supplies.	General expense.	Total f. o. b. mine.		
Year 1916	$1.13	$0.15	$0.20	$1.48	$1.73	$0.25
January-March, 1917	1.15	.14	.17	1.46	1.98	.52
April-August, 1917	1.36	.21	.22	1.79	2.19	.40
September-October, 1917	1.48	.19	.26	1.93	2.32	.39
November, 1917-February, 1918	1.67	.18	.24	2.09	2.60	.51
March, 1918	1.75	.18	.26	2.19	2.36	.17
April, 1918	1.76	.25	.25	2.26	2.26	.00
May, 1918	1.71	.19	.24	2.14	2.41	.27
June-December, 1918	1.74	.25	.23	2.22	2.57	.35

The labor costs in 1918 in the districts shown above were from 39 to 53 per cent higher, and the total f. o. b. mine costs in 1918 were from 42 to 48 per cent higher than those in 1916. The sales realizations in 1918 were from 46 to 69 per cent higher than those in 1916.

Of the amount paid for coal by the purchaser, based on each dollar of sales realization during 1916–1918, the item of most general interest is the proportion which labor received. That part of the amount paid by the purchaser which went to labor varied considerably from district to district, and in most districts from period to period. It was highest (88 cents out of each dollar) in both Oklahoma districts during September, 1917, and in the Eastern district of Oklahoma in November, 1917, and lowest (58 cents out of each dollar) in Montana during the period January-March, 1917.

A comparison of the rate of production per month and margins per ton for three periods during 1917–18 follows:

TABLE E.—*Average monthly output and average margin per ton, 1917–18, of 27 operators producing about 4,600,000 tons annually for period preceding any governmental price control over output, for period of governmental price control over part of the output, and for period of governmental price control over practically entire output.*

State and district.	January-August, 1917.		September, 1917-March, 1918.		April-December, 1918.	
	Average monthly output.	Margin per ton.	Average monthly output.	Margin per ton.	Average monthly output.	Margin per ton.
	Tons.		*Tons.*		*Tons.*	
Iowa: Marion-Monroe-Polk	51,124	$0.26	52,708	$0.43	38,848	$0.37
Oklahoma:						
McAlester Vein	41,717	.68	48,109	.30	49,677	.47
Eastern	98,084	.04	101,977	.21	105,157	.37
Montana	166,843	.45	195,982	.44	199,718	.31

It will be seen that in some instances an increase in production does not necessarily accompany an increase of margin, nor does a decrease in margin necessarily involve a decrease in production. The foregoing facts indicate clearly that the margin is but one of several factors which may stimulate or retard production. Production was also influenced by such conditions as strikes or other forms of labor shortage, transportation facilities, and the demand for coal in the markets available to the mines, etc. Explanations for the rise or fall of production are to be found in the particular conditions which existed during each period in each district.

The foregoing statistics for 1916–1918 are generally typical of conditions only in Iowa, Oklahoma, and Montana. They should not be considered as typical of conditions in the other 10 States shown in this report. Representative figures prior to August, 1917, were not obtained for operators in the remaining 23 districts in these 10 States. In the report, however, are shown for various significant periods the total f. o. b. mine cost and sales realizations of operators who produced about 48 to 97 per cent of the output in these districts, from August, 1917, through December, 1918.

As was pointed out in the previous reports on the production of bituminous coal, caution should be used in drawing deductions for the industry as a whole based on the 1918 costs, sales realizations, and margins, shown for the various districts in the 13 trans-Mississippi States in this report. Conditions in the different fields in the country varied widely in 1918.

Respectfully,

William B. Colver, *Chairman.*
John Franklin Fort.
Victor Murdock.
Huston Thompson.

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CHAPTER I.—INTRODUCTION.

1.—Character of cost information now published by the commission.

The cost information herein published by the commission for the period from August, 1917, to December, 1918, is based upon the monthly reports made by the operators on the detailed cost forms prescribed by the commission. Prior to August, 1917, it is based on costs which were submitted by the operators in support of applications for revision of official selling prices, or on costs which were obtained directly from the operators' books by the commission's agents.

In this report the cost information is of two kinds—Claimed costs and Revised costs. The Claimed costs are compiled from the original figures which appear on the operators' reports. The Revised costs are compiled from such reports, after the claimed costs were revised by the accounting staff of the commission, in order to readjust monthly costs and to eliminate obviously inflated costs. As examples of the first kind of revision may be mentioned the prorating, over several months, of payments for supplies, insurance, taxes, etc., made in some one month, but which apply to several months' operations. There were also a few instances of obviously inflated costs. Most of the gross inflations of this kind on the monthly cost reports were readily detected through the comparison of the costs of such operators, either with their own previously reported costs or with costs of the other operators operating in the same field under similar conditions. In all cases the operator was given opportunity to furnish a supplementary statement, showing the principal items making up the cost item which was questioned, and on the basis of such detailed information the revision was then made by the commission's accountants.

As examples of the detail which the operators furnished in such supporting statements, may be mentioned the following: Under labor and supplies the operator listed in detail the principal items making up the (specified) amount entered on his cost report on a (specified) line, and was called upon to explain fully the reason for any unusual or large expenditures incurred in connection therewith. In the case of royalties, of depletion, and of depreciation the operator, through the answer of many detailed questions, showed the basis of such charges. In the case of officers' salaries and expenses, the operator gave name and title of each officer, and stated separately his salary and his expenses, paid during each of the years 1915, 1916, 1917, and 1918. The commission required all of these supplementary

statements to be indorsed "approved and certified correct" over the signature of an officer of the concern.

It is with full appreciation of the patient cooperation of the great majority of operators, the honesty and the accuracy of whose cost reports are not open to question, that the commission is able to point out that the costs of from 90 to 95 per cent of the tonnage reported were as a rule accepted as substantially correct. Certain revisions were found necessary, however, and while generally they operated to reduce costs, in some instances they increased them. As will be seen from an examination of the tables appearing in this report, showing a comparison of claimed and revised costs, the revision made by the commission had little appreciable effect on the costs shown. Most of the revision occurs under "general expense," where most of the inflation was found to have taken place.

The information obtained shows minor subdivisions of cost, but the summaries published in this report are (1) the cost of the labor, (2) the cost of supplies, and (3) the general expense (or overhead) involved in mining the coal, bringing it to the surface, preparing it for market, and placing it in railroad cars for shipment. The total of these three costs is (4) the f. o. b. mine cost, shown by the commission. All costs and sales realizations shown in this report are based on tons of 2,000 pounds.

There are other factors than those enumerated above, which are matters to be taken into consideration in *price* determination, but which are not definitely ascertainable from the monthly cost reports. They are largely matters either of a study of the investment or of expert and professional judgment. The Federal Trade Commission has not yet undertaken, on an adequate scale, a study of the investment.

The costs shown by the Federal Trade Commission are not intended to include any of the following items: Reserves for uninsurable hazards, such as mine fires, floods, cave-ins, squeezes, strikes, or other similar causes contributing to destruction of property and idleness at the mines; extra cost development work done during the war and involving an increased risk in the recovery of the capital under a normal régime of prices of coal; selling expense, where a selling organization, other than the mine office force, is maintained in order to market the product; interest on the investment, including interest for borrowed capital; allowances for income and excess-profits taxes.

In its revision of the costs as reported by the operators the commission has endeavored to exclude all allowances for the foregoing items. The inclusion of such items by operators in the claimed costs is the main reason for the differences shown between claimed and revised costs. The commission considers that allowances of the nature above described should be taken care of in the "margin"—

that is, the difference between the f. o. b. mine cost of the coal and the amount received for it by the operator from the purchaser.

2.—Nature of sales realizations and margins.

The figures for "sales realization" were obtained by dividing the tonnage of coal sold into the total amount received from its sale. Purchased coal and coal used at the power plants have been excluded from these figures. The difference between the sales realization per ton and the f. o. b. mine cost per ton is the "margin." This "margin" must not be confused with what is often called profit. Selling expense, interest, income and excess profits taxes, as well as other items, must be deducted from it before the net profit from the operation available for dividends or surplus can be determined. The margin necessary to a profitable operation varies greatly from operator to operator. One operator may have a heavy investment in mining machinery per ton of product, and thus show a relatively low labor cost, while another operator may have a small investment, but a high labor cost. In the case of the first operator the margin obtained should be larger in order to give an equal rate of remuneration to the larger amount of invested capital per ton of product.

3.—Differences in costs between mines.

One of the most striking facts brought out in the statistics presented by the commission is the great differences in costs between operators mining coal in the same field. There are many causes for these differences. The principal causes may be briefly stated as follows:

1. If mines are not under same management part of the difference may be due to respective efficiency of the managements.

2. Physical conditions affecting cost may be widely different in respect to—

(*a*) Thickness of seam.

(*b*) Pitch of seam.

(*c*) Purity of coal in seam; freedom from foreign bodies, such as slate, sulphur balls, flinty nodules, etc.

(*d*) Relative hardness of coal.

(*e*) Faults and irregularities of seam.

(*f*) Character of top and bottom as determining amount of timbering.

(*g*) Character of operation, whether shaft or drift, amount of stripping, and distance of productive coal seams from surface.

(*h*) Drainage necessary for mine.

(*i*) Ventilation necessary for mine.

(*j*) Age of mine and character of mining, whether advancing rooms or robbing pillars.

(*k*) Necessity of measures to prevent cave-ins of surface, subsequent to removal of coal.

3. Lost time due to—

(*a*) Car shortage.

(*b*) Accidents to mine.

(*c*) Lack of sufficient labor.

4. Variations in payments for royalties and in the amounts of depletion, depreciation charges, and officers' salaries.

5. Differences in the use of labor-saving machinery (such as mining machines, electrical haulage, etc.).

6. Differences in the amount of preparation given the coal for market.

Of the foregoing causes of differences in cost of production, probably the most important one is the thickness of seam mined. As a general rule, it may be stated that until a certain thickness is reached the cost of mining decreases as the thickness of the seam increases. After it reaches a certain point (which will vary from field to field) the costs are likely to increase, due to the larger amount of timbering required.

It may be pointed out that, while as a general rule, labor costs and total f. o. b. mine costs in any given field will decrease as the seam thickens, this will not be found to apply in every case. It is believed, however, that such variations are due largely to exceptional conditions which obscure the effect of the general factor of thickness of seam.

The importance of the factor of thickness of seam is always recognized in the mining rates paid by the operator. It has also a most important bearing on the differences in the increase of labor cost per ton between the different mines, which result from the application of a uniform advance in the wage scale to the different conditions at the various mines.

Thus the uniform increase in the wage scale which took place at most of the mines in the country in November, 1917, resulted in an increase of labor cost per ton, varying from less than 25 cents per ton at some mines to over 70 cents per ton at others. These facts were clearly brought out through a comparison of the monthly cost reports for August, September, and October, 1917, the three months prior to the wage increase, with those for November and December, 1917, the two months subsequent to the increase.

The commission has collected much definite and detailed information bearing on the connection between advances in the general wage scale and the changes in labor cost of the different classes of operations. It hopes to be able to make this public at some future date. At the present time, however, merely the general facts can be shown.

CHAPTER II.—IOWA.

Part I. Introduction.

1. Definition of the various producing districts or fields.

The distribution of output between the various coal-producing districts in Iowa has been made in accordance with the areas included in those districts as defined by the Fuel Administration in its order effective October 1, 1917. The output comprised in the different districts is as follows:

Marion-Monroe-Polk district[1] includes the output of all mines in the State except those in Appanoose, Wayne, Boone, and Webster Counties.

Appanoose-Boone district includes the output of all mines in Appanoose, Wayne, Boone, and Webster Counties.

Since the Fuel Administration gave no specific titles to these districts, the foregoing descriptive titles are used in this report.

The location of these districts is shown on the map of Iowa (facing p. 42).

2. General statistics of output.

The statistics in this section for coal produced in Iowa have been compiled from reports published by the United States Geological Survey.

The proportion which the output of Iowa has formed of the total bituminous coal output of the United States is as follows:

	Per cent.		Per cent.
1911	1.8	1915	1.7
1912	1.6	1916	1.4
1913	1.6	1917	1.6
1914	1.8	1918	1.4

[1] As the output of Marion County was first placed in the Appanoose-Boone district in the Fuel Administration's order effective Mar. 11, 1918, and in the order effective Apr. 5, 1918, it was given the prices current in the remainder of the State, it has been placed in the Marion-Monroe-Polk district.

The following statement shows the proportions which the ouput of the various districts formed of the State total:

Year.	Production.	Proportion of total produced in each district.	
		Appanoose-Boone district.[1]	Marion-Monroe-Polk district.[2]
	Tons.	*Per cent.*	*Per cent.*
1911	7,331,648	20	80
1912	7,289,529	22	78
1913	7,525,936	21	79
1914	7,451,022	21	79
1915	7,614,143	20	80
1916	7,260,800	22	78
1917	8,965,830	23	77

[1] Includes output of Appanoose, Boone, Wayne, and Webster Counties.
[2] Includes output of State outside of Appanoose, Boone, Wayne, and Webster Counties.

The United States Geological Survey has collected information on the "average value per ton" for a long series of years. This average is obtained by dividing the total selling value by the total tonnage.[1]

The following table shows this information for 1911–1917:

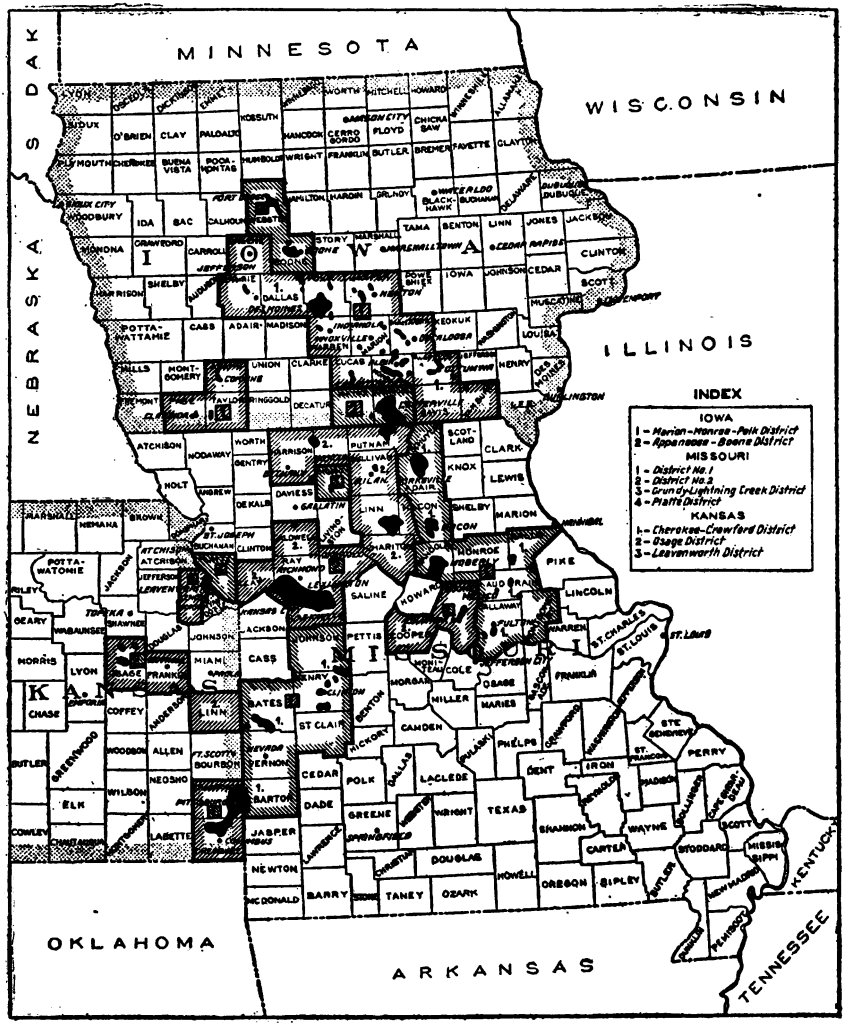
TABLE 1.—*Production and average value, 1911–1917, by producing districts and State of Iowa.*

Year.	Appanoose-Boone, district.		Marion-Monroe-Polk district.		State.	
	Production.	Average value per ton.	Production.	Average value per ton.	Production.	Average value per ton.
	Tons.		*Tons.*		*Tons.*	
1911	1,481,571	$1.93	5,850,077	$1.68	7,331,648	$1.73
1912	1,612,076	2.03	5,677,453	1.74	7,289,529	1.80
1913	1,595,050	2.03	5,930,886	1.73	7,525,936	1.79
1914	1,564,444	1.98	5,886,578	1.74	7,451,022	1.79
1915	1,521,017	1.97	6,093,126	1.74	7,614,143	1.78
1916	1,563,183	2.02	5,697,617	1.82	7,260,800	1.86
1917	2,089,507	2.64	6,876,323	2.27	8,965,830	2.35

In its reports for 1916 and 1917 the Geological Survey published "average values" in more detail than in previous reports. The

[1] "The value of coal given in this report is the realization value at the mine f. o. b. cars, and the average value per ton is the average realization price obtained by dividing the total value by the number of tons sold or produced. The coal used at the mine, the coal coked by the producing company, and the coal used in some other industry by the company operating the mine—an appreciable proportion of the whole—is never sold, and the value placed upon it is either an estimate or the figure at which it is carried on the books, either of which is supposedly based on what the coal would have brought if sold or what other fuel for the respective purpose would have cost if its purchase had been necessary. In other words, the values given represent returns to the operators for coal sold, plus estimated exchange value of that not sold. These figures do not necessarily show prices or even an average of the prices of coal at the mine." U. S. Geological Survey (Mineral Resources of the United States, 1917, Part II, p. 952).

IOWA, KANSAS AND MISSOURI
BITUMINOUS COAL FIELDS
AND
PRODUCING DISTRICTS



following table is compiled from statistics appearing in the 1916 and 1917 reports:

TABLE 2.—*Disposition of production and average values, by producing districts and State of Iowa, 1916–17.*

District.	Loaded at mines for shipment.				Sold to local trade and used by employees.			
	1916		1917		1916		1917	
	Production.	Average value per ton.	Production.	Average value per ton.	Production.	Average value per ton.	Production.	Average value per ton.
	Tons.		*Tons.*		*Tons.*		*Tons.*	
Appanoose-Boone district [1]	1,406,618	$2.02	1,881,156	$2.67	129,577	$2.30	149,672	$2.64
Marion-Monroe-Polk district [2]	5,115,152	1.80	6,073,310	2.22	462,140	2.19	635,298	2.81
State	6,521,770	1.85	7,954,466	2.33	591,717	2.22	784,970	2.78

District.	Used at mines for steam and heat.				Total.			
	1916		1917		1916		1917	
	Production.	Average value per ton.	Production.	Average value per ton.	Production.	Average value per ton.	Production.	Average value per ton.
	Tons.		*Tons.*		*Tons.*		*Tons.*	
Appanoose-Boone district [1]	26,988	$0.81	58,679	$1.75	1,563,183	$2.02	2,089,507	$2.64
Marion-Monroe-Polk district [2]	120,325	1.12	167,715	1.74	5,697,617	1.82	6,876,323	2.27
State	147,313	1.06	226,394	1.74	7,260,800	1.86	8,965,830	2.35

[1] Includes output of Appanoose, Boone, Wayne, and Webster Counties.
[2] Includes output of State outside of Appanoose, Boone, Wayne, and Webster Counties.

3. Character of the consumption of Iowa coal.

A portion of the output of bituminous coal in Iowa goes into domestic consumption. The proportion thus used varied from district to district, and is influenced partly by the nature of the coal, partly by the availability of substitutes, and partly by the extent of preparation given the coal for the purpose of adapting it to domestic use.

The exact extent to which the coal from this State enters into domestic use is not definitely ascertainable from any figures at present available. In the 1915 report of the United States Geological Survey [2] some statistics of the distribution of bituminous coal by classes of consumers, for Iowa, are shown. From these the percent-

[2] Mineral Resources of the United States, 1915. Part II, pp. 471–472.

ages of consumption shown in the following statement have been compiled:

	Per cent.
Railroad	58.0
Domestic and small steam coal trade	21.0
Industrial steam trade	19.0
Mine fuels	2.0
Total output (tons)	7,614,143

The following statistics of distribution of shipments of bituminous coal, by classes of consignees, October 5, 1918, to February 1, 1919, are taken from an unpublished manuscript of the Geological Survey, and are published by permission of that bureau:

	Per cent.
Railroad fuel	53.5
United States Government	2.4
State and county institutions	2.4
Public utilities, gas and electric	6.5
Retail dealers	6.1
Industries, including iron and steel	29.1
	100.0

The use of coal for domestic consumption introduces, to a greater or less extent, changes in the character of the seasonal demand. In Report No. 2 on Pennsylvania anthracite the commission pointed out the wide differences between the character of the demand for coal for domestic consumption and the demand for industrial use. Despite the marked seasonal fluctuations the annual domestic demand is likely to be a fairly constant quantity from year to year. On the other hand, the industrial demand for coal, while not always subject to such extreme *seasonal* fluctuations as that of coal for domestic use, is likely to vary to a much greater extent from *year* to *year*, influenced as it is primarily by periods of industrial prosperity or depression.

Part II. 1918 costs and sales realizations.

1. Number and extent of operations covered.

The 1918 production of the 78 operators in Iowa from whom cost reports were obtained by the commission, was as follows:

	Tons.	Per cent.
Marion-Monroe-Polk district:		
42 operators from whom costs were obtained for 12 months	5,691,953	98.9
1 operator from whom costs were obtained for 12 months but which were excluded for certain reasons	7,153	.1
2 operators from whom costs were obtained for less than the full 12 months (actual tonnage reported 16,940 tons) estimated yearly tonnage	56,484	1.0
Total	5,755,590	100.0

	Tons.	Per cent.
Appanoose-Boone district:		
27 operators from whom costs were obtained for 12 months	1,854,067	91.6
6 operators from whom costs were obtained for less than the full 12 months (actual tonnage reported 124,764 tons) estimated yearly tonnage	169,404	8.4
Total	2,023,471	100.0
State:		
69 operators from whom costs were obtained for 12 months	7,546,020	97.0
1 operator from whom costs were obtained for 12 months but which were excluded for certain reasons	7,153	.1
8 operators from whom costs were obtained for less than the full 12 months (actual tonnage reported 141,704 tons) estimated yearly tonnage	225,888	2.9
Total	7,779,061	100.0

The above figures are shown *inclusive* of power-house fuel, for comparison with the United States Geological Survey statistics. The total output of the 69 operators from whom costs were obtained for 12 months was, *exclusive* of power-house fuel, 7,370,966 tons.

According to statistics issued by the Geological Survey the output of Iowa during 1918 was 8,192,195 tons, of which 190,609 tons were used at the mine for steam and heat. The commission obtained cost information on 7,694,877 tons produced in 1918 (including power-house fuel), forming 94 per cent of the total as reported by the Survey. It publishes in this report cost information on 7,370,966 tons of commercial production, which is 92 per cent of the output reported by the Survey, after the exclusion of mine fuel.

2. Classification of producers by number of mines operated.

The costs of the 69 operators shown in the tabulation for Iowa cover the output of 94 mines. The following table shows the number of mines operated by the different producers:

TABLE 3.—*Number of mines operated by different producers in Iowa.*

Number of mines run by each operator.	Number of operators.	Proportion of total number.	Production tonnage, 1918.	Proportion of total production.
Marion-Monroe-Polk district:		*Per cent.*	*Tons.*	*Per cent.*
1 mine	33	78.6	2,994,145	54.0
2 mines	6	14.3	1,598,809	28.8
3 mines	3	7.1	951,226	17.2
Total (number of mines, 54)	42	100.0	5,544,180	100.0
Appanoose-Boone district:				
1 mine	19	70.4	766,412	42.0
2 mines	5	18.5	557,484	30.5
3 mines	2	7.4	336,774	18.4
5 mines	1	3.7	166,116	9.1
Total (number of mines, 40)	27	100.0	1,826,786	100.0
State:				
1 mine	52	75.4	3,760,557	51.0
2 mines	11	15.9	2,156,293	29.2
3 mines	5	7.2	1,288,090	17.5
5 mines	1	1.5	166,116	2.3
Total (number of mines, 94)	69	100.0	7,370,966	100.0

It will be seen that in the State 52 producers (75.4 per cent of the total number shown in the table) operated only one mine each, and produced 51 per cent of the output. The following statement shows the average number of mines operated by a producer, and the average production per mine operated by one-mine operators and by operators of two or more mines for each district and for the State of Iowa:

District.	Average number of mines operated by a producer.	Average production, per mine operated by—		
		One-mine operators.	Operators of two or more mines.	All operators combined.
	Mines.	*Tons.*	*Tons.*	*Tons.*
Marion-Monroe-Polk	1.3	90,732	121,430	102,670
Appanoose-Boone	1.5	40,337	50,494	45,670
State	1.4	72,318	85,962	78,415

The following statistics, compiled from the 1917 Annual Report of the Iowa State mine inspectors, for the calendar year 1917, are of interest in showing the proportions of the output produced by shipping mines and wagon mines, respectively, in each district:

TABLE 4.—*Shipping mines and wagon mines operated in Iowa in 1917.*

District.	Shipping mines.			Wagon mines.			All mines.	
	Number of mines.	Tonnage.	Per cent.	Number of mines.	Tonnage.	Per cent.	Number of mines.	Tonnage.
Marion-Monroe-Polk	55	6,599,675	94.1	107	417,510	5.9	162	7,017,185
Appanoose-Boone	50	1,928,019	94.9	34	104,602	5.1	84	2,032,621
State	105	8,527,694	94.2	141	522,112	5.8	246	9,049,806

The average output per mine by class of mines was as follows:

District.	Shipping mines.	Wagon mines.	All mines.
	Tons.	*Tons.*	*Tons.*
Marion-Monroe-Polk	119,994	3,902	43,316
Appanoose-Boone	38,560	3,076	24,198
State	81,216	3,703	36,788

The number and size of mines in Iowa are shown in further detail in the report for 1917 of the United States Geological Survey from which the following statistics are derived.[3]

[3] Mineral Resources of the United States, 1915. Part II, pp. 471–472.

Annual output of mines.	Mines.		Tonnage.	
	Number.	Proportion of total in State.	Average production per mine.	Proportion of total State output.
		Per cent.	*Tons.*	*Per cent.*
200,000 tons and over	6	2.8	336,267	22.5
100,000 to 199,999 tons	26	11.9	136,683	39.6
50,000 to 99,999 tons	31	14.2	67,019	23.1
10,000 to 49,999 tons	39	17.9	26,869	11.7
Under 10,000 tons	116	53.2	2,319	3.1
State	218	100.0	41,128	100.0

3. Classification of producers by size of output.

The 69 producers tabulated for Iowa are classified by size of their output in 1918, exclusive of power-house fuel, as follows:

TABLE 5.—*Classification of 69 Iowa operators by size of output.*

Production during 1918.	Number of operators.	Proportion of total number.	Tonnage produced, 1918.	Proportion of total production.
Marion-Monroe-Polk district:		*Per cent.*	*Tons.*	*Per cent.*
Under 50,000 tons	8	19.1	239,057	4.3
50,000 to 99,999 tons	14	33.3	1,091,638	19.7
100,000 to 499,999 tons	19	45.2	3,565,136	64.3
500,000 to 999,999 tons	1	2.4	648,349	11.7
Total	42	100.0	5,544,180	100.0
Appanoose-Boone district:				
Under 50,000 tons	15	55.6	466,395	25.5
50,000 to 99,999 tons	8	29.6	546,429	29.9
100,000 to 499,999 tons	4	14.8	813,962	44.6
Total	27	100.0	1,826,786	100.0
State:				
Under 50,000 tons	23	33.3	705,452	9.6
50,000 to 99,999 tons	22	31.9	1,638,067	22.2
100,000 to 499,999 tons	23	33.3	4,379,098	59.4
500,000 to 999,999 tons	1	1.5	648,349	8.8
Total	69	100.0	7,370,966	100.0

If the 8 operators from whom reports were received for less than 12 months and the 1 operator from whom reports were obtained, but in unusable form, be considered, it will be found that 1 operator had an estimated annual production of 72,000 tons. The remaining 8 operators had an average estimated annual production of 20,100 tons. Had reports for the full 12 months' period been available from them, it would be found that about 40 per cent of the operators produced about 11 per cent of the output.

4. The 1918 costs and sales realizations shown by districts.

There was no change in the official wage scale for bituminous coal miners in Iowa during 1918. Therefore the labor costs per ton for

the period were principally affected by changes in the production tonnage and not by changes in the rate of wages paid labor. The effect of decreased production in increasing labor costs can be clearly seen on Diagrams I and II (opposite p. 50) and Charts 1 and 2 (opposite p. 52).

Tables 1 to 10 in the appendix to this report (see pp. 354–364) show the costs and the sales realizations arranged from low to high in 10-cent groupings for each period shown. Throughout the tables for a given district the costs are shown for the same operators, but the costs of any given operator do not necessarily hold the same relative position in the 10-cent groups for each period. The shift of any operator in his relative position, from period to period, is generally slight.

The tables show, for each quarter and for the year as a whole, by 10-cent groupings, the tonnage produced at that cost, its per cent of the total production, the place of the group in the accumulated percentage, and the number of operators whose costs fell within each 10-cent group.

A summary of the significant facts brought out in Appendix Tables 1 to 10 appears in the following tables, in which are compared the true average cost and sales realization, the range of 90 per cent of the output which had the lowest costs and sales realizations, and the extreme range for the entire output of the 69 operators.

TABLE 6.—*1918 quarterly and yearly revised costs and sales realization for 42 operators in Marion-Monroe-Polk district of the State of Iowa, showing averages and range for 90 per cent and 100 per cent of total output.*

Period (1918).	Costs per net ton.												Sales realization per net ton.		
	Labor.			Supplies.			General expense.			Total f. o. b. mine.					
	Average.	Range. 90 per cent output.	Range. 100 per cent output.	Average.	Range. 90 per cent output.	Range. 100 per cent output.	Average.	Range. 90 per cent output.	Range. 100 per cent output.	Average.	Range. 90 per cent output.	Range. 100 per cent output.	Average.	Range. 90 per cent output.	Range. 100 per cent output.
January-March	$2.03	$1.62-$2.43	$1.62-$2.63	$0.18	$0.04-$0.31	$0.04-$0.55	$0.27	$0.15-$0.35	$0.15-$0.84	$2.48	$1.96-$2.90	$1.96-$3.29	$2.89	$2.44-$3.19	$2.44-$5.63
April-June	2.21	1.70- 2.55	1.70- 3.74	.23	.02- .36	.02- .87	.30	.17- .47	.17- 1.55	2.74	2.18- 3.21	2.18- 5.41	2.86	2.38- 3.15	2.38- 5.07
July-September	2.24	1.76- 2.81	1.76- 3.73	.21	.03- .34	.03- .90	.28	.17- .43	.17- .95	2.73	2.06- 3.44	2.06- 4.95	2.98	2.34- 3.15	2.34- 5.32
October-December	2.24	1.63- 2.60	1.63- 3.19	.24	.00- .35	.00- .58	.32	.19- .41	.19- .76	2.80	2.12- 3.25	2.12- 3.96	3.20	2.46- 3.83	2.46- 5.28
Year	2.17	1.74- 2.48	1.74- 2.93	.22	.02- .33	.02- .52	.29	.19- .40	.19- .70	2.68	2.10- 3.20	2.10- 3.65	2.98	2.65- 3.12	2.65- 5.12

TABLE 7.—*1918 quarterly and yearly revised costs and sales realization for 27 operators in Appanoose-Boone district of the State of Iowa, showing averages and range for 90 per cent and 100 per cent of total output.*

Period (1918).	Costs per net ton.												Sales realization per net ton.		
	Labor.			Supplies.			General expense.			Total f. o. b. mine.					
	Average.	Range. 90 per cent output.	Range. 100 per cent output.	Average.	Range. 90 per cent output.	Range. 100 per cent output.	Average.	Range. 90 per cent output.	Range. 100 per cent output.	Average.	Range. 90 per cent output.	Range. 100 per cent output.	Average.	Range. 90 per cent output.	Range. 100 per cent output.
January-March	$2.39	$2.08-$2.62	$2.08-$2.85	$0.17	$0.03-$0.25	$0.03-$0.45	$0.27	$0.00-$0.33	$0.00-$0.41	$2.83	$2.47-$3.17	$2.47-$3.32	$3.30	$2.50-$3.69	$2.50-$3.87
April-June	2.53	1.89- 2.94	1.89- 3.24	.22	.06- .29	.06- 1.52	.34	.02- .40	.02- .60	3.09	2.49 -3.55	2.49 -4.82	3.32	2.67 -3.49	2.67 -3.73
July-September	2.43	1.88- 2.79	1.88- 2.85	.23	.08- .29	.08- 1.47	.28	.02- .36	.02- .43	2.94	2.56 -3.33	2.56 -3.74	3.31	2.80 -3.45	2.80 -3.56
October-December	2.62	1.97- 2.83	1.97- 3.65	.28	.07- .57	.07- .57	.32	.02- .44	.02- .53	3.22	2.61 -3.56	2.61 -3.92	3.35	2.80 -3.45	2.80 -3.79
Year	2.48	1.97- 2.80	1.97- 2.89	.22	.09- .32	.09- .72	.30	.01- .37	.01- .42	3.00	2.64 -3.27	2.64 -3.76	3.32	2.73 -3.50	2.73 -3.60

The following table of yearly averages is given for the sake of ready comparison of the two districts:

TABLE 8.—*Average costs and sales realizations of the two Iowa districts for the year 1918.*

District.	Production.	Costs per ton.				Sales realization per ton.	Margin per ton.
		Labor.	Supplies.	General expense.	Total f. o. b. mine.		
	Tons.						
Marion-Monroe-Polk	5,544,180	$2.17	$0.22	$0.29	$2.68	$2.98	$0.30
Appanoose-Boone	1,826,786	2.48	.22	.30	3.00	3.32	.32

The labor cost of the Appanoose-Boone district was about 30 cents per ton higher than that for the Marion-Monroe-Polk district. This is due, in a large degree, to the difference in the thickness of seams mined, and to some extent also is attributable to differences in the mining methods followed. As will be noted from the tabulation of thickness of seam (see Table 12, p. 54), 70 per cent of the output of the Appanoose-Boone district came from seams which averaged less than 3 feet thick, and all the output from seams that averaged less than 4 feet thick, while in the Marion-Monroe-Polk district the proportion of output from seams averaging under 3 feet thick was but 3 per cent and from seams averaging less than 4 feet thick but 33 per cent.

The returns for Iowa covered the output of a number of "long-wall" mines, as well as of mines of the more general "room-and-pillar" type. The long-wall system of mining, which involves the utilization of the downward thrust of the ground overhead, in severing the coal from the seam with little or no use of explosives, after the coal has been undercut, is particularly suited to the mining of thin seams. Though it involves the use of a larger proportion of hand labor at the face of the seam (i. e., where the coal is mined), there is less expense for timbering, haulage, etc., since most of the rock obtained in the mining of the coal is used for building the pillars or piers ("gob" walls) which keep the roof from caving in along the galleries after the removal of the coal. This system of "long-wall" mining which is usually much more successful than the "room-and-pillar" system in obtaining most of the coal which lies in the seam, is adapted only to certain conditions of top and bottom, and is not always practicable in thin-seam mining.

In this connection the following statistics, compiled from the 1917 Annual Report of the Iowa State mine inspectors, for the calendar year of 1917, are of interest in showing the distribution of long-wall and room-and-pillar mines in each district:

BITUMINOUS COAL—IOWA

DIAGRAM I.

Marion-Monroe-Polk District

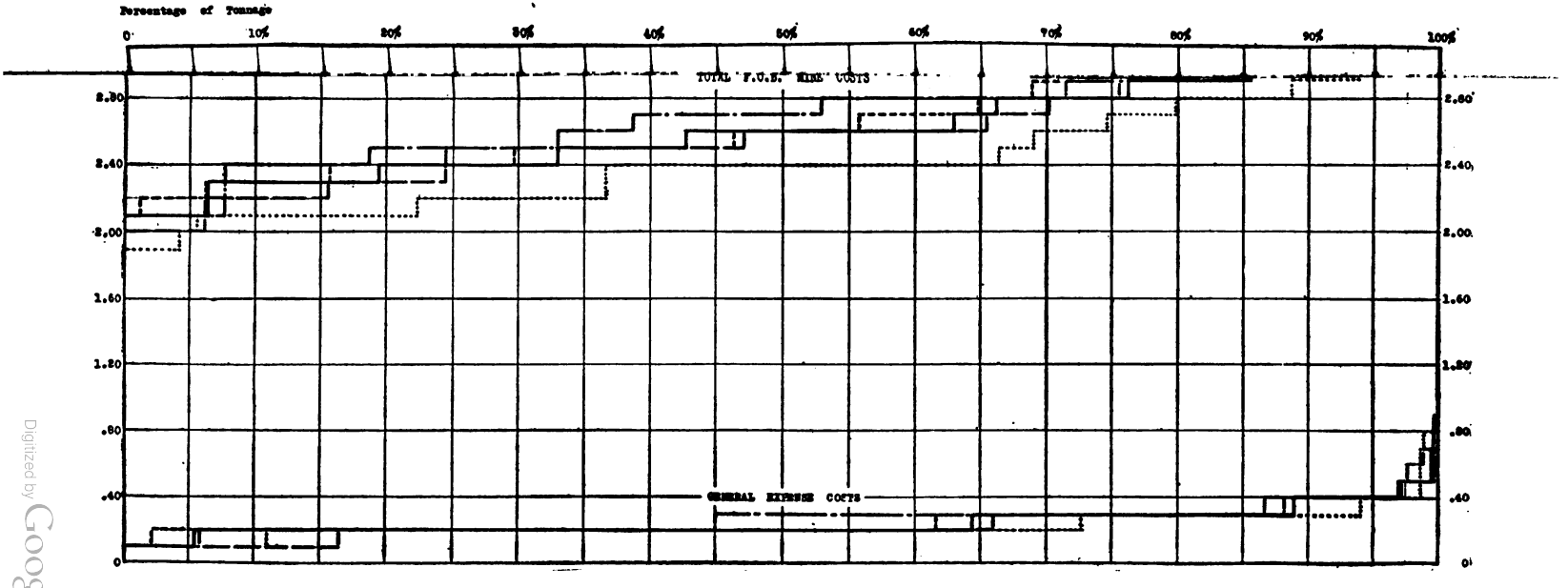


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TABLE 9.—*Long-wall and room-and-pillar mines operated in Iowa in 1917.*

County.	Number of mines operated under each system.		
	Long-wall.	Room-and-pillar.	Total.
Marion-Monroe-Polk:			
Adams	8	.....	8
Page	3	.....	3
Taylor	5	.....	5
Guthrie	3	.....	3
Greene	2	1	3
Warren	1	3	4
Lucas	2	3	5
Wapello	4	20	24
Dallas	.....	5	5
Polk	.....	23	23
Jasper	.....	8	8
Marion	.....	18	18
Mahaska	.....	22	22
Keokuk	.....	4	4
Monroe	.....	24	24
Jefferson	.....	1	1
Davis	.....	2	2
Van Buren	.....	5	5
Total for district	28	139	167
Appanoose-Boone:			
Appanoose	51	22	73
Wayne	5	1	6
Boone	8	1	9
Webster	2	1	3
Total in district	66	25	91
Total in State	94	164	258

From the above table it will be seen that about 70 per cent of the long-wall mines in the State were in the Appanoose-Boone district, and about 85 per cent of the room-and-pillar mines were in the Marion-Monroe-Polk district.

Complete returns for the 12 months in 1918 were not received by the commission from any long-wall operator in the Marion-Monroe-Polk district. Of the 27 operators whose 1918 costs are shown for the Appanoose-Boone district, 18 operated long-wall mines and 9 operated room-and-pillar mines. The following statistics analyzed in detail on page 56, in connection with thickness of seams mined, are also given here because of their bearing on the figures shown in Table 8.

Character of mine.	Number of operators.	Production, 1918.	Costs per ton.	
			Labor.	Total f. o. b. mine.
Appanoose-Boone district:		*Tons.*		
Long-wall mines	18	1,111,298	$2.53	$3.08
Room-and-pillar mines	9	715,488	2.40	2.87
State, total:				
Long-wall mines	18	1,111,298	2.53	3.08
Room-and-pillar mines	51	6,259,668	2.20	2.70

Detailed statistics are not available to show how far the differences in cost are attributable to the greater use of machines in mining coal in one district as compared with another. The proportion of the total production mined by machines is stated by the United States Geological Survey to have been 11.4 per cent in 1917 for the State as a whole.[4]

5. Relation of the costs to the sales realizations.

The following table shows the distribution, by quarters and for the year 1918, between the items of labor, supplies, general expense, and margin of each dollar of sales realization received by the operator:

TABLE 10.—*Distribution of the amount paid by the purchaser between the various principal costs and the margin, based on each dollar of sales realization, for the Marion-Monroe-Polk and the Appanoose-Boone districts in Iowa, 1918, by quarters and for the year.*

Period.	Costs.				Margin.
	Labor.	Supplies.	General expense.	Total f. o. b. mine.	
1918.					
Marion-Monroe-Polk district:	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*
January-March	70	6	10	86	14
April-June	77	8	11	96	4
July-September	75	7	10	92	8
October-December	70	8	10	88	12
Year	73	7	10	90	10
Appanoose-Boone district:					
January-March	73	5	8	86	14
April-June	76	7	10	93	7
July-September	73	7	9	89	11
October-December	78	8	10	96	4
Year	75	6	9	90	10

These facts are shown in graphic form in Chart 3 (opposite).

6. Comparison of claimed and revised costs.

The foregoing tables present costs which have in some cases been revised by the accountants of the commission from the claimed figures reported on the original schedules by the operators. Tables 11 and 12 in the appendix to this report show the claimed 1918 costs, compiled in all cases directly from the figures submitted by the operators.

The changes brought about through the revision in the average costs for the year 1918 for the 69 operators were as follows:

[4] Mineral Resources of the United States, 1917, Part II, p. 941.

BITUMINOUS COAL — IOWA

CHART 1. — Production tonnage by quarters for 1918 of 69 Operators by producing Districts in Iowa

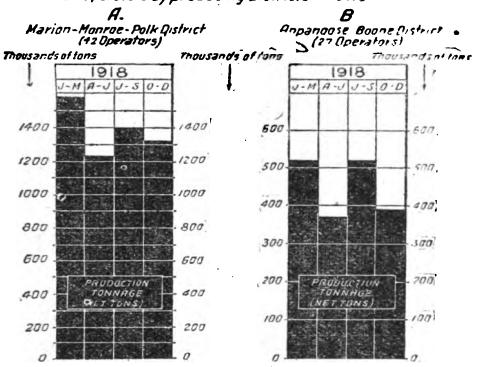


CHART 3. — Distribution of Amount paid by purchaser between the various principal Costs and the Margin based on each dollar of Sales Realization by quarters in 1918 in Iowa

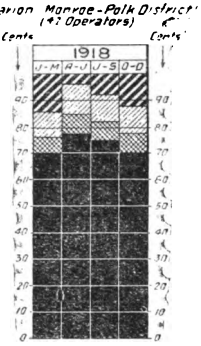
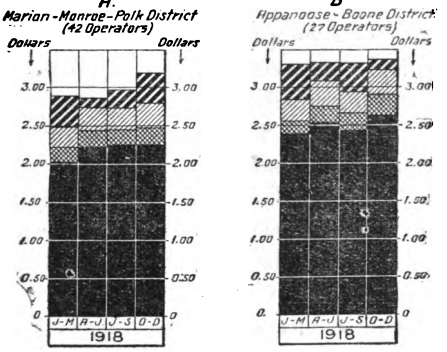
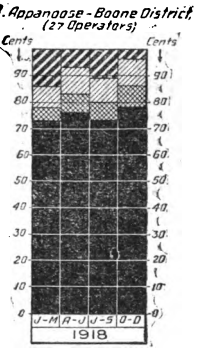


CHART 2. — Average Costs and Sales Realizations per ton by quarters for 1918, of 69 Operators by producing Districts in Iowa





Labor ■ Supplies ■ Gen'l Expenses ▨ Margin ▨

Item.	Claimed costs.	Revised costs.	Increase (I) or decrease (D) due to revision.
Marion-Monroe-Polk district:			
Production (tons)	5,691,953	5,544,180	[1] 147,773 (D)
Labor ... per ton	$2.12	$2.17	$0.05 (I)
Supplies ... do	.27	.22	.05 (D)
General expense ... do	.35	.29	.06 (D)
Total f. o. b. mine ... do	2.74	2.68	.06 (D)
Appanoose-Boone district:			
Production (tons)	1,854,067	1,826,786	[1] 27,281 (D)
Labor ... per ton	$2.44	$2.48	$0.04 (I)
Supplies ... do	.26	.22	.04 (D)
General expense ... do	.35	.30	.05 (D)
Total f. o. b. mine ... do	3.05	3.00	.05 (D)
State:			
Production (tons)	7,546,020	7,370,966	[1] 175,054 (D)
Labor ... per ton	$2.20	$2.25	$0.05 (I)
Supplies ... do	.27	.22	.05 (D)
General expense ... do	.35	.29	.06 (D)
Total f. o. b. mine ... do	2.82	2.76	.06 (D)

[1] Due to exclusion of power-house fuel.

The increase of 5 cents in the average State revised over the claimed labor cost is caused by the use of the revised production tonnage as a divisor. The total claimed labor cost was $16,577,162 and the revised labor cost was $16,587,183. The apparent revision upward resulted from the transfer by the commission of items properly chargeable under labor, which had been included under a different classification by operators.

The costs claimed by some of the operators were obviously open to question as to their accuracy. Such operators were required by the commission to furnish further detailed information in support of their claimed costs. Examination of the data submitted by them revealed the fact that they had in some cases included in labor and supplies items properly chargeable to capital accounts, and in general expense officers' salaries greatly in excess of those paid in neighboring operations of similar size and excessive charges for depreciation and depletion, which had not been computed in accordance with the instructions issued by the commission. The chief instances of revision under the head of general expense affected two operators and involved less than 2 per cent of the total tonnage of the State.

7. 1918 costs shown by thickness of seam.

About 49 per cent of the output of Iowa came from 17 producers who operated more than one mine. Most of these producers did not report the costs of each mine separately. In order to include them in a tabulation to show costs by thickness of seam it was necessary to use the average of the seams mined by them. This has led to the inclusion of data in the tabulation for the 69 operators, which to a slight extent vitiates its scientific value, since it is not known whether equal tonnage was derived from mines which had seams above or

below the average thickness. The tabulation by thickness of seam for the 69 operators follows:

TABLE 11.—*Seam tabulation of revised costs for 69 operators in Iowa.*

Thickness of seam.	Number of operators.	Production, 1918.	Costs per ton.			
			Labor.	Supplies.	General expense.	Total f. o. b. mine.
Marion-Monroe-Polk district:		*Tons.*				
24 to 35 inches	1	148,629	$2.24	$0.22	$0.29	32.75
36 to 47 inches	17	1,680,249	2.26	.26	.35	2.87
48 to 59 inches	11	1,353,646	2.18	.20	.27	2.65
60 to 71 inches	10	2,146,717	2.10	.20	.26	2.56
72 to 83 inches	3	214,939	2.12	.13	.28	2.53
Total	42	5,544,180	2.17	.22	.29	2.68
Appanoose-Boone district:						
24 to 35 inches	20	1,274,827	2.54	.23	.28	3.05
36 to 47 inches	7	551,959	2.34	.22	.33	2.89
Total	27	1,826,786	2.48	.22	.30	3.00
State:						
24 to 35 inches	21	1,423,456	2.51	.22	.28	3.01
36 to 47 inches	24	2,232,208	2.28	.25	.35	2.88
48 to 59 inches	11	1,353,646	2.18	.20	.27	2.65
60 to 71 inches	10	2,146,717	2.10	.20	.26	2.56
72 to 83 inches	3	214,939	2.12	.13	.28	2.53
Total	69	7,370,966	2.25	.22	.29	2.76

In order to eliminate the effect of the inclusion of average thicknesses, where producers operated two or more mines, a seam tabulation has been made of the 52 one-mine operators. It will be noted from the following table that the tonnage of the 52 one-mine operators was somewhat more regularly distributed among the different thicknesses of seam than was the case with the 69 operators:

TABLE 12.—*Distribution, between seams, of output of 69 operators and 52 one-mine operators in Iowa.*

Thickness of seam.	42 operators producing 5,544,180 tons in 1918.		33 operators producing 2,994,145 tons in 1918.	
	Number of operators.	Per cent of output.	Number of operators.	Per cent of output.
Marion-Monroe-Polk district:				
24 to 35 inches	1	2.7	1	5.0
36 to 47 inches	17	30.3	14	40.8
48 to 59 inches	11	24.4	9	28.2
60 to 71 inches	10	38.7	6	18.8
72 to 83 inches	3	3.9	3	7.2
Total	42	100.0	33	100.0
	27 operators producing 1,826,786 tons in 1918.		19 operators producing 766,412 tons in 1918.	
Appanoose-Boone district:				
24 to 35 inches	20	69.8	14	73.8
36 to 47 inches	7	30.2	5	26.2
Total	27	100.0	19	100.0

TABLE 12.—*Distribution, between seams, of output of 69 operators and 52 one-mine operators in Iowa*—Continued.

Thickness of seam.	69 operators producing 7,370,966 tons in 1918.		52 operators producing 3,760,557 tons in 1918.	
	Number of Operators	Per cent of output.	Number of Operators.	Per cent of output.
State:				
24 to 35 inches	21	19.3	15	19.0
36 to 47 inches	24	30.3	19	37.8
48 to 59 inches	11	18.4	9	22.5
60 to 71 inches	10	29.1	6	15.0
72 to 83 inches	3	2.9	3	5.7
Total	69	100.0	52	100.0

The tabulation of cost, by thickness of seam, for the 52 one-mine operators follows:

TABLE 13.—*Seam tabulation of revised costs for 52 one-mine operators in Iowa.*

Thickness of seam.	Number of operators.	Production, 1918.	Costs per ton.			
			Labor.	Supplies.	General expense.	Total f. o. b. mine.
Marion-Monroe-Polk district:		*Tons.*				
24 to 35 inches	1	148,629	$2.24	$0.22	$0.29	$2.75
36 to 47 inches	14	1,221,741	2.29	.29	.35	2.93
48 to 59 inches	9	846,063	2.31	.24	.31	2.86
60 to 71 inches	6	562,773	2.14	.23	.33	2.70
72 to 83 inches	3	214,939	2.12	.13	.28	2.53
Total	33	2,994,145	2.25	.25	.33	2.83
Appanoose-Boone district:						
24 to 35 inches	14	565,487	2.47	.21	.28	2.96
36 to 47 inches	5	200,925	2.62	.24	.34	3.20
Total	19	766,412	2.51	.22	.29	3.02
State:						
24 to 35 inches	15	714,116	2.43	.21	.28	2.92
36 to 47 inches	19	1,422,666	2.34	.28	.35	2.97
48 to 59 inches	9	846,063	2.31	.24	.31	2.86
60 to 71 inches	6	562,773	2.14	.23	.33	2.70
72 to 83 inches	3	214,939	2.12	.13	.28	2.53
Total	52	3,760,557	2.31	.24	.32	2.87

A summary of the principal facts relating to labor, supplies, and total f. o. b. mine cost of the 52 one-mine operators, arranged in comparative form for the districts and the State, is shown below:

Thickness of seam.	Marion-Monroe-Polk district.			Appanoose-Boone district.			State.		
	Labor.	Supplies.	Total f. o. b. mine cost.	Labor.	Supplies.	Total f. o. b. mine cost.	Labor.	Supplies.	Total f. o. b. mine cost.
24 to 35 inches	$2.24	$0.22	$2.75	$2.47	$0.21	$2.96	$2.43	$0.21	$2.92
36 to 47 inches	2.29	.29	2.93	2.62	.24	3.20	2.34	.28	2.97
48 to 59 inches	2.31	.24	2.86	.....	.....	.....	2.31	.24	2.86
60 to 71 inches	2.14	.23	2.70	.....	.....	.....	2.14	.23	2.70
72 to 83 inches	2.12	.13	2.53	.....	.....	.....	2.12	.13	2.53
Total	2.25	.25	2.83	2.51	.22	3.02	2.31	.24	2.87

In both Tables 11 and 13 there is shown, with but two exceptions, a decrease in the average labor cost per ton with the increase in the thickness of seam, until seams 6 feet and over are reached. In Table 11 the labor cost for seams 6 feet and over is slightly above that for seams 5 to 6 feet thick; and in Table 13 the labor cost for seams 6 feet and over is the lowest shown for any seam. There is no close correlation shown between the various costs of supplies and thickness of seam.

As was pointed out on page 51, the mines of 18 operators in the Appanoose-Boone district were of the long-wall type, while 9 operators had room-and-pillar mines.

The following table shows a comparison for the Appanoose-Boone district, and for the State, of the costs of each class of mine, shown by thickness of seam operated:

TABLE 14.—*Comparison of 1918 costs of long-wall and room-and-pillar mines, in the Appanoose-Boone district, and for the State of Iowa, by thickness of seams.*

Thickness of seam.	Long-wall mines.				Room-and-pillar mines.			
	Number of operators.	Production.	Cost per ton.		Number of operators.	Production.	Cost per ton.	
			Labor.	Total f. o. b. mine.			Labor.	Total f. o. b. mine.
Appanoose-Boone district:		*Tons.*				*Tons.*		
24 to 35 inches	14	875,785	$2.51	$3.05	6	399,042	$2.62	$3.03
36 to 47 inches	4	235,513	2.64	3.19	3	316,446	2.12	2.67
Total	18	1,111,298	2.53	3.08	9	715,488	2.40	2.87
State:								
24 to 35 inches	14	875,785	2.51	3.05	7	547,671	2.51	2.85
36 to 47 inches	4	235,513	2.64	3.19	20	1,996,695	2.24	2.84
48 to 59 inches	.....	.....	.....	.....	11	1,353,646	2.18	2.65
60 to 71 inches	.....	.....	.....	.....	10	2,146,717	2.10	2.56
72 to 83 inches	.....	.....	.....	.....	3	214,939	2.12	2.53
Total	18	1,111,298	2.53	3.08	51	6,259,668	2.20	2.70

The above figures indicate that in the Appanoose-Boone district, for seams between 2 and 3 feet thick, the labor cost is lower for the long-wall than for the room-and-pillar type, while for seams between 3 and 4 feet thick the labor cost is much higher for the long-wall type. The fact that the long-wall system of mining is adapted primarily to thin seams is brought out by the figures for the State, where it will be seen that there were no long-wall operations reported on seams over 4 feet thick.[5]

[5] In this connection it is of interest to compare similar statistics for district No. 1, in Illinois. As was pointed out on page 34 of the Commission's Report No. 3, Illinois-Bituminous, there are a number of long-wall mines in that district. The following statement has been compiled for the 21 operators from whom 1918 costs were obtained:

Thickness of seam.	Long-wall mines.				Room-and-pillar mines.			
	Number of operators.	Production, 1918.	Costs per ton.		Number of operators.	Production, 1918.	Costs per ton.	
			Labor.	Total f. o. b. mine.			Labor.	Total f. o. b. mine.
		Tons.				*Tons.*		
24 to 35 inches	3	315,765	$2.88	$3.52				
36 to 47 inches	10	2,628,069	2.18	2.69	[1] 2	[1] 61,235	[1] $2.41	[1] $2.86
48 to 59 inches					6	473,320	1.85	2.30
District No. 1, total	13	2,943,834	2.25	2.78	8	534,555	1.91	2.36

[1] Includes one operator with a 32-inch seam. Figures are shown combined in order not to permit identification.

General expense is less affected than labor cost by conditions of a physical nature, like thickness of seam, but is closely connected with the commercial and financial economies of operation. The following comparison of the 52 one-mine operators with the 17 operators of two or more mines is of interest:

TABLE 15.—*Comparison of average revised costs: Operators of one mine with operators of two or more mines in Iowa.*

District.	Number of operators.	Number of mines.	Output, 1918.			Costs per ton.			
			Total output.	Output per operator.	Output per mine.	Labor.	Supplies.	General expense.	Total f. o. b. mine.
Marion-Monroe-Polk:			*Tons.*	*Tons.*	*Tons.*				
1 mine	33	33	2,994,145	90,732	90,732	$2.25	$0.25	$0.33	$2.83
2 or more mines	9	21	2,550,035	283,337	121,430	2.08	.18	.25	2.51
Total	42	54	5,544,180	132,004	102,670	2.17	.22	.29	2.68
Appanoose-Boone:									
1 mine	19	19	766,412	40,337	40,337	2.51	.22	.29	3.02
2 or more mines	8	21	1,060,374	132,547	50,494	2.46	.23	.30	2.99
Total	27	40	1,826,786	67,659	45,670	2.48	.22	.30	3.00
State:									
1 mine	52	52	3,760,557	72,318	72,318	2.31	.24	.32	2.87
2 or more mines	17	42	3,610,409	212,377	85,962	2.19	.19	.27	2.65
Total	69	94	7,370,966	106,826	78,415	2.25	.22	.29	2.76

In the Appanoose-Boone district the general expense cost of operators of two or more mines was slightly higher than that of the one-mine operators. In the Marion-Monroe-Polk district, and for the State as a whole, the general expense costs were substantially lower for the operators of two or more mines than those for the one-mine operators.

Part III. Comparative Costs and Sales Realizations for 1916, 1917, and 1918.

The commission has obtained, for the 33-month period, April, 1916–December, 1918, the costs and sales realizations of two operators in the Marion-Monroe-Polk district of Iowa, who mined about 550,000 tons annually, and for 1917 and 1918 of three operators (including the foregoing two operators), who mined about 725,000 tons annually. All the information which deals with the period prior to August, 1917, was obtained by accountants of the commission directly from the records of the operators. The information for August, 1917–December, 1918, was obtained from the operators' reports made direct to the commission on its prescribed cost form.

1. Representativeness of statistics presented.

In order that the costs and sales realizations of these two operators should be accepted as typical of the district, they must be shown to be of a fairly representative character. In 1916 these two operators produced 6.6 per cent, and in 1917, 9.2 per cent of the commercial tonnage of the district, as derived from reports of the United States Geological Survey. In 1918 they produced 9.2 per cent of the tonnage reported by the Federal Trade Commission for the district. It should be noted that the period covered for the two operators for 1916 was nine months only, while the Survey figures cover the calendar year. The representativeness of the 1916 output of the two operators is, therefore, actually greater than the comparison would indicate.

The representativeness of the sales realizations in 1916 and 1917 may be judged by comparison with "the average value per ton" figures derived for the district from the Geological Survey reports for 1916 and 1917, by using the value of tonnage "loaded at the mines for shipment" and "sold to local trade and used by employees." Such a comparison follows:

	1916.	1917.
United States Geological Survey average value	$1.84	$2.28
Federal Trade Commission sales realization	1.98	2.35

A comparison of the average total f. o. b. mine costs and the average sales realizations of the two operators whose figures cover 1916–1918, and the three operators (including the foregoing two operators) whose figures cover 1917–18, with those of 42 operators during August–December, 1917, and in 1918 of 42 operators (five of whom were different from those shown for August–December, 1917) is shown in the following table. The 42 operators shown for August–

December, 1917, produced 2,539,826 tons during the five months' period and the 42 shown for 1918 produced 5,544,180 tons during 1918.

TABLE 16.—*Comparison of average revised costs and sales realizations per ton for August, 1917–December, 1918, of 42 operators with 3 operators and 2 operators in the Marion-Monroe-Polk district of Iowa.*

Period.	Total f. o. b. mine cost per ton.			Sales realization per ton.			Margin per ton.		
	42 operators.	3 operators.	2 operators.	42 operators.	3 operators.	2 operators.	42 operators.	3 operators.	2 operators.
August, 1917	$2.05	$2.09	$2.08	$2.20	$2.31	$2.32	$0.15	$0.22	$0.24
September–October, 1917	2.06	2.12	2.11	2.30	2.40	2.41	.27	.28	.30
November–December, 1917	2.42	2.42	2.37	2.82	2.91	2.92	.40	.49	.56
January–March, 1918	2.48	2.53	2.50	2.89	2.90	2.91	.41	.37	.41
April–May, 1918	2.74	2.85	2.87	2.85	2.99	3.03	.11	.14	.16
June–December, 1918	2.76	2.67	2.64	3.05	3.04	3.05	.29	.37	.41

From the foregoing table it will be seen that there generally was a fairly close correspondence during August–December, 1917, and January–May, 1918, between the average total f. o. b. mine costs, sales realizations, and margins of the 42 operators combined with those of the three operators combined and of the two operators combined. During the period, June–December, 1918, the average costs of the 42 operators were from 9 to 12 cents higher, while the sales realizations were about the same as those of the lesser number of operators. As a result the margin of the 42 operators during June–December 1918, was from 8 to 12 cents lower. The fairly close correspondence shown between the average costs and sales realizations of the two and three operators, and those of all the operators (42) who reported from the district shows that their figures, especially those of the three operators, can be considered as representative of the general trend of costs and sales realizations in the district.

Representative figures were not obtained by the commission for costs and sales realizations prior to August, 1917, in the Appanoose-Boone district. Use has, therefore, been made of the monthly reports covering the last five months of 1917. Nearly every one of the operators that appears in the 1917 appears also in the 1918 figures, but there are a few unimportant exceptions, which do not affect the general comparability of the 1917 figures with those of 1918. The average total f. o. b. mine costs, sales realizations, and margins of about 90 per cent of the entire output mined in this district are shown.

2. The revised costs, sales realizations, and production figures, and analyses of the fluctuations, by districts, 1916–1918.

MARION-MONROE-POLK DISTRICT.

The significance of the seven periods selected for presenting the figures for April, 1916–December, 1918, for the Marion-Monroe-Polk district is as follows:

April–October, 1916.—During this period the wage scale adopted in the spring of 1916 was in effect. During the last two months of this period the demand for coal was beginning to strengthen and sales realizations to rise.

November, 1916–March, 1917.—During this period the demand for coal caused a high realization on that part of the output which was not sold under contract. The wage scale adopted in the spring of 1916 continued in effect.

April–August, 1917.—War was begun, and a new wage scale went into operation. The contracts for the sale of coal entered into were generally at much higher prices than previous contracts, while the "spot" market advanced.

September–October, 1917.—This period directly followed the fixing, by Executive order of August 21, 1917, of maximum prices for bituminous coal not sold under contracts made prior to that date and the establishment of a Fuel Administration to regulate the fuel situation. The 1917 wage scale continued in operation during these two months.

November, 1917–March, 1918.—This period directly followed the 45-cent increase in the maximum prices allowed by Executive order in consequence of the adoption of a new wage scale (1917–18), which was higher than that adopted earlier in 1917. Many of the contracts made prior to August 21, 1917, continued through this period.

April–May, 1918.—Beginning with this period, practically the entire output of coal, whether sold under contract or not, was subject to the governmental maximum prices. The 1917–18 wage scale continued in operation.

June–December, 1918.—This period followed the reduction made by the Fuel Administration of 10 cents per ton, effective May 25, 1918, in the maximum prices for the district. Throughout this period the official maximum prices remained unchanged, and the 1917–18 wage scale continued in effect.

TABLE 17.—*Revised costs and sales realizations of 2 operators mining about 550,000 tons annually in the Marion-Monroe-Polk district of Iowa, 1916–1918.*

Period.	Production.	Costs per ton.				Sales realization per ton.	Margin per ton (realization f.o.b. mine cost).
		Labor.	Supplies.	General expense.	Total f. o. b. mine.		
1916.	*Tons.*						
April	24,914	$1.57	$0.19	$0.25	$2.01	$1.87	[1] $0.14
May	27,171	1.65	.18	.26	2.09	1.88	[1] .21
June	31,009	1.66	.18	.26	2.10	1.92	[1] .18
July	25,375	1.74	.23	.23	2.20	1.88	[1] .32
August	44,751	1.51	.12	.19	1.82	1.95	.13
September	49,683	1.45	.14	.17	1.76	1.96	.20
October	55,313	1.44	.15	.17	1.76	1.98	.22
November	57,329	1.37	.15	.18	1.70	2.03	.38
December	54,096	1.38	.15	.17	1.70	2.10	.40
1917.							
January	59,316	1.39	.15	.18	1.72	2.09	.37
February	51,322	1.43	.17	.17	1.77	2.10	.33
March	57,523	1.42	.15	.16	1.73	2.03	.30
April	35,866	1.63	.25	.28	2.16	2.07	[1] .09
May	52,795	1.62	.20	.17	1.99	2.26	.27
June	49,748	1.60	.16	.17	1.93	2.24	.31
July	51,080	1.64	.20	.17	2.01	2.27	.26
August	51,338	1.69	.22	.17	2.08	2.32	.24
September	45,466	1.72	.22	.21	2.15	2.36	.21
October	54,738	1.69	.17	.21	2.07	2.45	.38
November	55,420	1.95	.20	.20	2.35	2.90	.55
December	54,589	1.99	.18	.22	2.39	2.95	.56
1918.							
January	58,159	1.97	.19	.28	2.44	2.94	.50
February	53,048	2.00	.18	.27	2.45	2.94	.49
March	47,533	2.10	.20	.31	2.61	2.84	.23
April	30,168	2.37	.32	.39	3.08	3.01	[1] .07
May	41,336	2.15	.23	.33	2.71	3.03	.32
June	44,063	2.05	.20	.32	2.57	2.99	.42
July	50,102	2.01	.20	.31	2.52	3.03	.51
August	52,427	1.97	.24	.29	2.50	2.99	.49
September	41,003	2.17	.33	.34	2.84	3.07	.23
October	34,669	2.07	.22	.32	2.61	3.11	.50
November	28,334	2.09	.30	.37	2.76	3.13	.37
December	27,531	2.13	.21	.44	2.78	3.12	.34
April–October, 1916	258,216	1.54	.16	.21	1.91	1.93	.02
November, 1916–March, 1917	279,586	1.40	.15	.17	1.72	2.08	.36
April–August, 1917	240,827	1.64	.20	.19	2.03	2.24	.21
September–October, 1917	100,204	1.70	.20	.21	2.11	2.41	.30
November, 1917–March, 1918	268,749	2.00	.19	.25	2.44	2.92	.48
April–May, 1918	71,504	2.24	.27	.36	2.87	3.03	.16
June–December, 1918	278,129	2.06	.24	.34	2.64	3.05	.41
Year 1917	619,201	1.65	.18	.19	2.02	2.35	.33
Year 1918	508,373	2.07	.23	.32	2.62	3.00	.38

[1] Amount by which the total f. o. b. mine cost exceeded the sales realization.

TABLE 18.—*Revised costs and sales realizations of three operators mining about 725,000 tons annually in the Marion-Monroe-Polk District of Iowa, 1917–18.*

Period.	Production.	Costs per ton.				Sales realization per ton.	Margin per ton (realization over f. o. b. mine cost).
		Labor.	Supplies.	General expense.	Total f. o. b. mine.		
1917.	*Tons.*						
January	78,529	$1.38	$0.17	$0.18	$1.73	$2.07	$0.34
February	65,707	1.44	.18	.17	1.79	2.09	.30
March	73,114	1.43	.18	.17	1.78	2.02	.24
April	49,877	1.68	.25	.28	2.21	2.05	[1].16
May	69,109	1.67	.21	.17	2.05	2.23	.17
June	63,662	1.62	.18	.18	1.98	2.22	.24
July	65,404	1.65	.21	.18	2.04	2.26	.22
August	64,501	1.69	.22	.18	2.09	2.31	.22
September	58,227	1.70	.23	.21	2.14	2.35	.21
October	67,091	1.70	.17	.22	2.09	2.44	.35
November	67,934	1.99	.20	.21	2.40	2.90	.50
December	67,937	2.03	.19	.22	2.44	2.93	.49
1918.							
January	73,997	2.01	.20	.27	2.48	2.94	.46
February	66,436	2.04	.19	.28	2.51	2.93	.42
March	61,579	2.13	.21	.30	2.64	2.82	.18
April	42,397	2.34	.30	.36	3.00	2.98	[1].02
May	53,969	2.18	.22	.32	2.72	3.00	.28
June	56,469	2.09	.21	.31	2.61	2.95	.34
July	63,700	2.05	.20	.31	2.56	3.01	.45
August	64,624	2.03	.23	.29	2.55	2.98	.43
September	50,054	2.23	.32	.34	2.89	3.07	.18
October	46,343	2.12	.21	.31	2.64	3.11	.47
November	38,007	2.14	.30	.36	2.80	3.13	.33
December	39,427	2.13	.22	.40	2.75	3.12	.37
January–March, 1917	217,350	1.42	.17	.18	1.77	2.06	.29
April–August, 1917	312,553	1.66	.21	.20	2.07	2.22	.15
September–October, 1917	125,318	1.70	.20	.22	2.12	2.40	.28
November, 1917–March, 1918	337,883	2.04	.19	.26	2.49	2.90	.43
April–May, 1918	96,366	2.25	.26	.34	2.85	2.99	.14
June–December, 1918	358,624	2.10	.24	.33	2.67	3.04	.37
Year 1917	791,092	1.66	.20	.19	2.05	2.32	.27
Year 1918	657,002	2.11	.23	.31	2.65	2.99	.34

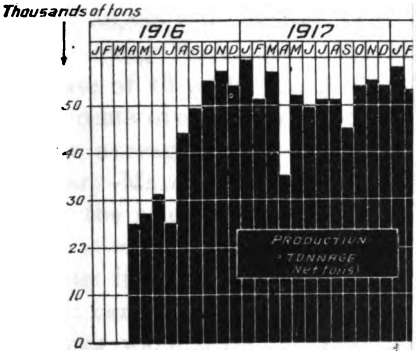
[1] Amount by which the total f. o. b. mine cost exceeded the sales realization.

In Table 17 are shown the figures for two operators for whom information was obtained covering 33 consecutive months from April, 1916, to December, 1918. These two operators had an annual production of about 550,000 tons. In Table 18 are shown figures for three operators for 24 consecutive months from January, 1917, to December, 1918. These three operators (including the two operators shown in Table 17) had an annual production of about 725,000 tons. The following analysis of the fluctuations of production costs and sales realizations in the Marion-Monroe-Polk district is principally based on the combined figures of the three operators in Table 18 as being somewhat more representative of the district than those in Table 17. The information appearing in the first two divisions of Table 17 is shown in graphic form in Chart 4 (opposite).

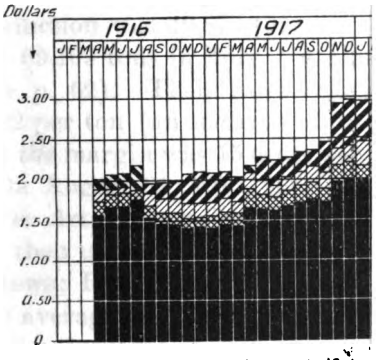
The average labor cost during April–October, 1916, for the two operators shown in Table 17 was $1.54 per ton. The total f. o. b. mine cost was $1.91 per ton, the sales realization $1.93, and the

CHART 4. — Production, Average Costs an
April, 1916 to Dec. 1918, of Operators pu
550,000 tons annually in Marion - Monr

A.
Production, monthly

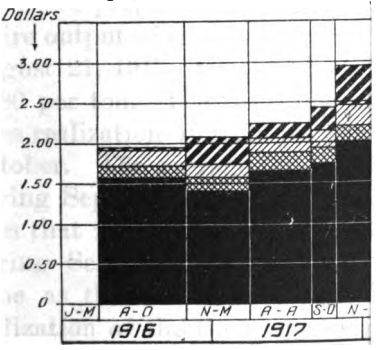


B.
Average Costs and Sales Realizatior



F.O.B. Mine Cost exceeded Sales

C.
Average Costs and Sales Realizations
during April, 1916 to Dec. 1918.



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margin 2 cents per ton. During the period November, 1916–March, 1917, their average f. o. b. mine cost was $1.72—a decrease of 19 cents from that of April–October, 1916. Their average monthly production increased, being 55,917 tons per month, as compared to an average of 36,888 tons during April–October, 1916. Their sales realization during November, 1916–March, 1917, was $2.08 per ton, an increase of 15 cents, and their margin 36 cents per ton, an increase of 34 cents over that of April–October, 1916.

The average labor cost of the three operators in Table 18, for January–March, 1917, was $1.42 per ton, the total f. o. b. mine cost $1.77, the sales realization $2.06, and the margin 29 cents per ton. Their average labor cost during April–August, 1917, was $1.66 per ton, an increase of 24 cents over that for January–March, 1917 ($1.42 per ton). This increase in cost is principally attributable to a higher wage scale and partly to a decrease in production. Their average monthly output during April–August was 62,511 tons, a decrease over the average for January–March, 1917 (72,450 tons). The decrease was particularly noticeable in April, 1917, when the production was 49,877 tons, as compared with 73,114 tons in March and 69,109 tons in May. A similar situation existed in April, 1918 (see p. 62). Their sales realization for April–August, 1917, was $2.22 per ton (an increase of 16 cents over that of January–March), and the margin was 15 cents per ton (a decrease of 14 cents).

On August 21, 1917, the Government first fixed prices under the Lever Act. The prices fixed by Executive order for the sale of coal not then under contract in this district on August 21, 1917, were as follows: Run of mine, $2.70; prepared sizes, $2.95; slack, $2.45. The average proportions which these three classes of coal formed of the total output, based on actual returns for all operators in this district who reported to the Federal Trade Commission during the period August–December, 1917, were as follows: Run of mine, 14 per cent; prepared sizes, 62 per cent; slack, 24 per cent. Had the entire output of the three operators been sold at the prices established August 21, 1917, it would have brought them a sales realization of $2.80 per ton. The three operators in Table 18 actually received a sales realization of $2.35 per ton during September and $2.44 during October. The average total f. o. b. mine cost of the three operators during September–October, 1917, was $2.12 per ton (5 cents higher than that for April–August, 1917). Their average monthly output during September–October, 1917, was 62,659 tons, practically the same as that of April–August (62,511 tons). The average sales realization of the three operators for September–October was $2.40 (18 cents higher than that for April–August), and their margin 28 cents per ton (13 cents higher).

The distribution of the total f. o. b. mine costs for 42 operators who mined 1,481,589 tons in the Marion-Monroe-Polk district during the three months of August–October, 1917, is shown in the following table:

TABLE 19.—*Total f. o. b. mine costs of 42 operators in the Marion-Monroe-Polk district of Iowa for August–October, 1917.*

Total f. o. b. mine cost per ton by $0.10 groupings.	Number of operators.	Accumulated per cent of output.
$1.70 to $1.79	5	23.8
$1.80 to $1.89	3	31.0
$1.90 to $1.99	5	50.4
$2.00 to $2.09	4	59.2
$2.10 to $2.19	5	71.5
$2.20 to $2.29	6	83.7
$2.30 to $2.39	4	89.7
$2.40 to $2.49	2	92.8
$2.50 to $2.59	3	95.4
$2.60 to $2.69	2	98.6
$2.70 to $2.79	1	99.8
Over $2.80	2	100.0
	42	100.0

It appears, therefore, that had the operators sold their entire output at the prices fixed by the President on August 21, 1917, about 93 per cent of the output would have shown a margin of 25 cents or over per ton. The 42 operators actually received a sales realization during August–October, 1917, of $2.27 per ton, which left them an average margin of 23 cents per ton over their average f. o. b. mine cost of $2.04 per ton.

Effective November 1, 1917, a 45-cent increase in the price of non-contracted coal was allowed by Executive order to take care of an increase in the wage scale which went into effect at that time. The labor cost for the period November, 1917–March, 1918, of the three operators shown in Table 18 increased 34 cents per ton (from $1.70 per ton in September–October, 1917, to $2.04 per ton, in November, 1917–March, 1918). This increase is attributable to the higher wage scale. The average monthly production was 67,577 tons for November, 1917–March, 1918, an increase over that for September–October, 1917 (62,659 tons). The average total f. o. b. mine cost of the three operators for the period November, 1917–March, 1918, was $2.49 per ton (an increase of 37 cents over September–October, 1917), the sales realization $2.90 (an increase of 50 cents), and the margin 43 cents per ton (an increase of 15 cents).

Effective March 11, 1918, the Fuel Administration established new maximum prices for the output of operators in Marion County, which is included in the area of the Marion-Monroe-Polk district. The new prices established for Marion County were (including the 45-cent increase of Nov. 1, 1917, because of the wage increase): Run of mine,

$3.20; prepared sizes, $3.55; slack or screenings, $2:45. Of the 42 operators shown in Table 6 (see p. 49), five operators who produced about 8 per cent of the total 1918 output shown for the district were in Marion County. Not one of the three operators shown in Table 18 was in Marion County. Effective April 5, 1918, another order of the Fuel Administration fixed new prices for Marion County. These new prices were the same as those then in force for the remainder of the Marion-Monroe-Polk district.

The average total f. o. b. mine cost for the three operators during April–May, 1918, was $2.85 per ton—an increase of 36 cents over the average of November, 1917–March, 1918. The average output for April–May, 1918, was 48,183 tons—a decrease from the average monthly production of November, 1917–March, 1918. The decrease in production was especially marked in April, 1918. The April tonnage was 42,397 tons, as compared with 61,579 for March and 53,969 tons for May. One of the mines whose output is included in the above figures reported but 8 days' work during the month of April, and another mine but 11 days' work, the reasons assigned for the shutdown being lack of orders and shortage of labor and cars. The average sales realization for April–May, 1918, was $2.99 per ton—an increase of 9 cents. The margin was 14 cents—a decrease of 29 cents.

Effective May 25, 1918, the Fuel Administration made a reduction of 10 cents per ton in the existing maximum prices for the district. The average total f. o. b. mine cost of the three operators during June–December, 1918, was $2.67 per ton—a decrease of 18 cents from the average for April–May, 1918. Their average monthly production for the seven-month period was 51,232 tons, an increase over that of April–May. Their average sales realization was $3.04 per ton—an increase of 5 cents per ton over that of April–May, 1918. The average margin was 37 cents per ton—an increase of 23 cents over that of April–May, 1918.

APPANOOSE-BOONE DISTRICT.

The significance of the eight periods selected for presenting the figures for August, 1917–December, 1918, for the Appanoose-Boone district is as follows:

August, 1917.—The greater part of this month was prior to the fixing, by Executive order of August 21, 1917, of maximum prices for bituminous coal not sold under contracts made prior to that date, and the establishment of a fuel administration to regulate the fuel situation.

September, 1917.—This period directly followed the fixing, by Executive order of August 21, 1917, of maximum prices for bitu-

minous coal not sold under contracts made prior to that date and the establishment of a fuel administration to regulate the fuel situation. The 1917 wage scale continued in operation during this month.

October, 1917.—This period followed a 45-cent per ton increase effective October 1, 1917, made by the Fuel Administration in the maximum prices established for this district.

November–December, 1917.—This period directly followed the 45-cent increase in maximum prices allowed by Executive order in consequence of the adoption of a new wage scale (1917–1918) which was higher than that adopted earlier in 1917.

January–February, 1918.—During this period the prices fixed November 1, 1917, continued. The number of operators in the district from whom 1918 figures were obtained was less than that from whom August–December, 1917, figures were available.

March, 1918.—Effective March 11, 1918, the Fuel Administration made a change in the maximum prices established for this district.

April–May, 1918, June–December, 1918.—These periods have been described under Marion-Monroe-Polk district (see p. 60).

TABLE 20.—*Revised costs and sales realizations of operators in the Appanoose-Boone district of Iowa, August, 1917–December, 1918.*

Period.	Number of operators.	Production.	Total f. o. b. mine cost, per ton.	Sales realization, per ton.	Margin, per ton.
		Tons.			
August, 1917	31	142,180	$2.37	$2.58	$0.21
September, 1917	31	151,855	2.34	2.60	.26
October, 1917	34	196,462	2.30	2.92	.62
November-December, 1917	31	360,533	2.80	3.40	.60
January-February, 1918	27	396,685	2.77	3.38	.61
March, 1918	27	133,265	3.01	3.04	.03
April-May, 1918	27	214,873	3.23	3.28	.05
June-December, 1918	27	1,082,463	3.04	3.33	.29

On August 21, 1917, the Government first fixed prices under the Lever Act. The prices fixed by Executive order for the sale of coal not then under contract in this district on August 21, 1917, were as follows: Run of mine, $2.70; prepared sizes, $2.95; slack, $2.45. The average proportions which these three classes of coal formed of the total output, based on actual returns for all operators in this district who reported to the Federal Trade Commission during the period August–December, 1917, were as follows: Run of mine, 2 per cent; prepared sizes, 94 per cent; slack, 4 per cent. Had the entire output of the 31 operators been sold at the prices established August 21, 1917, it would have brought them a sales realization of $2.93 per ton. The 31 operators actually received, during September, 1917, a sales realization of $2.60 per ton, which was 2 cents more than they received during August ($2.58 per ton). The average total f. o. b.

mine cost of the 31 operators was, for September, 1917, $2.34 per ton (a decrease of 3 cents from that in August), while their tonnage was 151,855 tons (an increase from that in August—142,180 tons). Their margin during September was 26 cents per ton, an increase of 5 cents over August.

Effective October 1, 1917, the Fuel Administration made an increase of 45 cents per ton in the existing maximum prices for the district. The total f. o. b. mine cost of the 31 operators during October was $2.30 per ton (a decrease of 4 cents from that of September). The production in October showed an increase, being 196,462 tons. The sales realization was $2.92 (an increase of 32 cents), and the margin 62 cents per ton (an increase of 36 cents). These increases are principally attributable to the increased official prices.

Effective November 1, 1917, a 45-cent increase in the established maximum prices was allowed by Executive order, to take care of an increase in the wage scale which went into effect at that time. The average f. o. b. mine cost of the 31 operators for November–December, 1917 ($2.80 per ton), increased 50 cents over that for October, 1917, a part of this increase being attributable to the higher wage scale and a part to the decrease in the output (to an average of 180,267 tons per month). Their average sales realization for November–December, 1917, was $3.40 per ton (an increase of 48 cents), and their margin 60 cents per ton (a decrease of 2 cents).

During January–February, 1918, the average total f. o. b. mine cost of the 27 operators who reported for the 12 months in 1918 was $2.77 per ton, their sales realization $3.38, and their margin 61 cents per ton. Effective March 11, 1918, the Fuel Administration made a change in the existing maximum prices for the district. The new prices (including the Nov. 1, 1917, price increase because of the wage increase) were as follows: Run of mine, $3.20; prepared sizes, $3.55; slack, $2.45. Applying to these prices the proportions (already stated) which these three classes of coal form of the total output, a sales realization of $3.50 per ton was possible had the entire output been sold at the maximum prices. The total f. o. b. mine cost of the 27 operators in March was $3.01 per ton (an increase of 24 cents over the average for January–February). Their output in March was 133,265 tons (a heavy decrease from the average for January–February, which was 198,343 tons). The sales realization in March was $3.04 per ton—a decrease of 34 cents from January–February, principally attributable to the change in the official maximum prices. The margin during March was 3 cents per ton—a decrease of 58 cents from January–February, partly attributable to the increase in cost and partly to the change in official prices. The total f. o. b. mine cost of the 27 operators during April–

May, 1918, was $3.23 per ton (an increase of 22 cents over March). The production in April–May showed a decrease, averaging 107,437 tons per month as compared with 133,265 tons in March. The sales realization was $3.28 (an increase of 24 cents), and the margin 5 cents per ton (an increase of 2 cents).

Effective May 25, 1918, the Fuel Administration made a reduction of 10 cents per ton in the existing maximum prices for this district. During the period June–December, 1918, there was no change in the official maximum prices for this district. The 27 operators had an average f. o. b. mine cost of $3.04 per ton (a decrease of 19 cents per ton from April–May). The production during the last seven months averaged 154,638 tons per month. The average sales realization of the 27 operators for June–December, 1918, was $3.33 per ton and their margin 29 cents per ton.

3. Relation of the cost subdivisions to the total f. o. b. mine costs.

The following table, based on revised costs, shows the distribution by specified periods between the items of labor, supplies, and general expense of each dollar in the total f. o. b. mine cost:

TABLE 21.—*Distribution between labor, supplies, and general expense of each dollar of total f. o. b. mine cost, 1916–1918, by specified periods, and by calendar years for 2 operators producing about 550,000 tons annually in the Marion-Monroe-Polk district of Iowa.*

Period.	Labor.	Supplies.	General expense.
	Cents.	*Cents.*	*Cents.*
April–October, 1916	81	8	11
November, 1916–March, 1917	81	9	10
April–August, 1917	81	10	9
September–October, 1917	81	9	10
November, 1917–March, 1918	82	8	10
April–May, 1918	78	9	13
June–December, 1918	78	9	13
Year 1917	82	9	9
Year 1918	79	9	12

The foregoing table shows that there was relatively slight variation from period to period in the proportion which the labor cost formed of the total f. o. b. mine cost throughout the period shown.

4. Relative increases in the various costs, 1916–1918.

In the following table are shown the relative increases in the various costs during 1917–18, based on the costs of April–October, 1916:

TABLE 22.—*Relative increases in the average costs, November, 1916–December, 1918, as compared with April–October, 1916, for two operators producing about 550,000 tons annually in the Marion-Monroe-Polk district of Iowa.*

Period.	Labor.	Supplies.	General expense.	Total f. o. b. mine cost.
	Per cent.	*Per cent.*	*Per cent.*	*Per cent.*
April–October, 1916	[1] B	[1] B	[1] B	[1] B
November, 1916–March, 1917	[2] 9	[2] 7	[2] 20	[2] 10
April–August, 1917	6	25	[2] 10	6
September–October, 1917	10	25	.....	10
November, 1917–March, 1918	30	19	19	28
April–May, 1918	45	69	71	50
June–December, 1918	34	50	62	38

[1] Base. [2] Decrease.

The most significant increase was in the labor cost, which was, in April–May, 1918, 45 per cent, and in June–December, 1918, 34 per cent, above that in 1916. The rates of increase in the supplies cost, while much larger than those of the labor cost, had much less effect on the increase of the total f. o. b. mine cost, since, as shown in Table 21, the supplies cost in the district averaged from 8 to 10 per cent of the total f. o. b. mine cost, while the labor cost formed from 78 to 82 per cent.

5. *Changes in the relation of costs to sales realizations.*

The following table, based on the revised costs and sales realizations shown in Table 17 (see p. 61), shows the distribution for specified periods between the items of labor, supplies, general expense, and margin to operator of each dollar paid for coal to the operator by the purchaser:

TABLE 23.—*Distribution of the amount paid by the purchaser between the various principal costs and the margin, based on each dollar of sales realization, 1916–1918, by specified periods and by calendar years, for two operators producing about 550,000 tons annually in the Marion-Monroe-Polk district of Iowa.*

Period.	Labor.	Supplies.	General expense.	Total f. o. b. mine.	Margin.
	Cents.	*Cents.*	*Cents.*	*Cents.*	*Cents.*
April–October, 1916	80	8	11	99	1
November, 1916–March, 1917	68	7	8	83	17
April–August, 1917	73	9	9	91	9
September–October, 1917	71	8	9	88	12
November, 1917–March, 1918	68	7	9	84	16
April–May, 1918	74	9	12	95	5
June–December, 1918	68	8	11	87	13
Year 1917	70	8	8	86	14
Year 1918	69	8	10	87	13

These facts are shown in graphic form in Chart 5 (opposite p. 62).

That part of the amount paid by the purchaser which went to labor varied from period to period. It was highest (80 cents out of the dollar) during April–October, 1916, and lowest (68 cents out of the dollar) during November, 1916–March, 1917, November, 1917–March, 1918, and June-December, 1918.

The margin varied greatly from period to period. It was highest (17 cents out of the dollar) during November, 1916–March, 1917, and lowest (1 cent out of the dollar) during April–October, 1916. It must not, however, be supposed that such margins were all clear profit to the operators. As has been pointed out, the commission's revised cost figures exclude any charges for interest, income and excess profits taxes, donations, etc., which are expenditures that, while not entering into operating cost, must be met from the margin; nor is there any allowance in the total f. o. b. mine cost for the expense of selling the coal.

Of the 69 operators in Iowa whose costs were obtained for 1918, 44 reported a selling expense on their coal and 25 did not report any. For those that did report the claimed selling expense varied from three-tenths of 1 cent to 20 cents per ton, the average being 4 cents per ton.

It is fair to assume that a very large part of the output of the operators who reported no selling expense (forming about one-third of all operators reporting in the district) reached the consumer through the jobbers or sales agencies. Probably also a considerable fraction of the output of the remaining two-thirds of the operators went through such channels.

That part of the output sold through jobbers is sold f. o. b. at the mine, and there is little or no selling expense to be considered, since it is taken care of in the sales realization, and would not come out of margin.

Considering the total investment as the amount necessary to operate the business, whether in the form of capital stock and surplus, bonds, or other borrowed money, the return on the total investment in the business, after deducting the estimated average selling expense from the margin, and before deducting interest on borrowed money or Federal income and excess profits taxes, is shown in the statement following for the years 1916, 1917, and 1918, for the two operators who produced about 550,000 tons annually:

	April-December, 1916.	1917	1918
Margin between f. o. b. mine cost and sales realization	$0.13	$0.33	$0.38
Estimated selling expense	.04	.04	.04
Amount per ton earned on investment before deducting interest on borrowed money and Federal income and excess profits taxes	.09	.29	.34

CHAPTER III.—KANSAS.

Part I. Introduction.

1. Definition of various producing districts or fields.

The distribution of output between the various coal-producing districts in Kansas has been made in accordance with the areas or the seams included in those districts as defined by the Fuel Administration in its orders effective October 1, 1917, and April 20, 1918. The output comprised in the different districts is as follows:

Cherokee-Crawford district includes the output of all mines in Cherokee and Crawford Counties, except shaft mines in Lightning Creek or upper thin vein, and includes also the output from any mining operations in the State not covered by other rulings.

Lightning-Creek district includes the output of shaft workings in the Lightning Creek or upper thin vein in Cherokee and Crawford Counties.

Osage district includes the output of all mines in Osage, Franklin, and Linn Counties.

Leavenworth district includes the output of all mines in Leavenworth County, except those mines at Leavenworth, Kans., where the major portion of the coal is mined in the State of Missouri, which are to be regarded as Missouri mines.[6]

Since the Fuel Administration gave no specific titles to these districts the foregoing descriptive titles are used in this report.

The location of these districts is shown on the map of Kansas (facing p. 42).

2. General statistics of output.

The statistics in this section for coal produced in Kansas have been compiled from reports published by the United States Geological Survey.

The proportion which the output of Kansas has formed of the total bituminous coal output of the United States is as follows:

	Per cent.		Per cent.
1911	1.5	1915	1.5
1912	1.6	1916	1.4
1913	1.5	1917	1.3
1914	1.6	1918	1.3

[6] Fuel Administration order effective October 1, 1917.

The following statement shows the proportions which the output of the various districts form of the State total:

Year.	Production.	Proportion of total produced in each district.		
		Cherokee-Crawford district.[1]	Osage district.	Leavenworth district.
	Tons.	*Per cent.*	*Per cent.*	*Per cent.*
1911	6,178,728	95	2	3
1912	6,986,182	95	2	3
1913	7,202,210	96	2	2
1914	6,860,988	97	1	2
1915	6,824,474	96	2	2
1916	6,881,455	96	2	2
1917	7,184,975	97	1	2

[1] Cherokee and Crawford Counties and any mining operations in the State not covered by other rulings. The output of shaft workings in the Lightning Creek or upper thin vein in Cherokee and Crawford Counties is not shown separately.

The United States Geological Survey has collected information on the "average value per ton" for a long series of years. This average is obtained by dividing the total selling value by the total tonnage.[7]

The following table shows this information for 1911–1917:

TABLE 24.—*Production and average value, 1911–1917, by producing districts and State of Kansas.*

Year.	Cherokee-Crawford district.[a]		Osage district.		Leavenworth district.		State.	
	Production.	Average value per ton.	Production.	Average value per ton.	Production.	Average value per ton.	Production.	Average value per ton.
	Tons.		*Tons.*		*Tons.*		*Tons.*	
1911	5,838,434	$1.49	134,245	$2.35	206,049	$2.32	6,178,728	$1.53
1912	6,611,550	1.58	170,109	2.55	204,523	2.18	6,986,182	1.62
1913	6,898,263	1.64	142,738	2.47	161,209	2.33	7,202,210	1.67
1914	6,660,184	1.62	100,013	2.49	110,791	2.07	6,860,988	1.64
1915	6,560,099	1.64	111,320	2.50	153,055	2.16	6,824,474	1.66
1916	6,598,306	1.75	133,527	2.68	149,622	2.46	6,881,455	1.78
1917	6,920,731	2.28	105,535	3.51	158,709	2.92	7,184,975	2.31

[a] Cherokee and Crawford Counties and any mining operations in the State not covered by other rulings. The output of shaft workings in the Lightning Creek or upper thin vein in Cherokee and Crawford Counties is not shown separately.

[7] "The value of coal given in this report is the realization value at the mine f. o. b. cars, and the average value per ton is the average realization price obtained by dividing the total value by the number of tons sold or produced. The coal used at the mine, the coal coked by the producing company, and the coal used in some other industry by the company operating the mine—an appreciable proportion of the whole—is never sold, and the value placed upon it is either an estimate or the figure at which it is carried on the books, either of which is supposedly based on what the coal would have brought if sold or what other fuel for the respective purpose would have cost if its purchase had been necessary. In other words, the values given represent returns to the operators for coal sold, plus estimated exchange value of that not sold. These figures do not necessarily show prices or even an average of the prices of coal at the mine." U. S. Geological Survey. (Mineral Resources of the United States, 1917. Part II, p. 952.)

In its reports for 1916 and 1917 the Geological Survey published "average values" in more detail than in previous reports. The following table is compiled from statistics appearing in the 1916 and 1917 reports:

TABLE 25.—*Disposition of production and average values, by producing districts and State of Kansas, 1916–17.*

District.	Loaded at mines for shipment.				Sold to local trade and used by employees.			
	1916		1917		1916		1917	
	Production.	Average value per ton.	Production.	Average value per ton.	Production.	Average value per ton.	Production.	Average value per ton.
	Tons.		*Tons.*		*Tons.*		*Tons.*	
Cherokee-Crawford [1]	6,351,967	$1.76	6,645,060	$2.29	92,127	$1.86	96,906	$2.79
Osage	114,759	2.68	85,569	3.61	18,601	2.69	19,582	3.12
Leavenworth	110,338	2.48	107,878	2.89	34,325	2.44	45,516	3.00
State	6,577,064	1.78	6,838,507	2.31	145,053	2.10	161,004	2.89

District.	Used at mines for steam and heat.				Total.			
	1916		1917		1916		1917	
	Production.	Average value per ton.	Production.	Average value per ton.	Production.	Average value per ton.	Production.	Average value per ton.
	Tons.		*Tons.*		*Tons.*		*Tons.*	
Cherokee-Crawford [1]	154,212	$1.31	179,765	$1.83	6,598,306	$1.75	6,920,731	$2.28
Osage	167	2.13	384	1.92	133,527	2.68	105,535	3.51
Leavenworth	4,959	1.98	5,315	2.78	149,622	2.46	158,709	2.92
State	159,338	1.34	185,464	1.86	6,881,455	1.78	7,184,975	2.31

[1] Cherokee and Crawford Counties and any mining operations in the State not covered by other rulings. The output of shaft workings in the Lightning Creek or upper thin vein in Cherokee and Crawford Counties is not shown separately.

3. Character of the consumption of Kansas coal.

A portion of the output of bituminous coal in Kansas goes into domestic consumption. The proportion thus used varies from district to district, and is influenced partly by the nature of the coal, partly by the availability of substitutes, and partly by the extent of preparation given the coal for the purpose of adapting it to domestic use.

The exact extent to which the coal from this State enters into domestic use is not definitely ascertainable from any figures at present available.

An analysis of the statistics of percentage of sizes produced by the Kansas mines as compiled from the report of the State Inspector

of Coal Mines and Coal Production, for the calendar year 1916, is presented in the following statement:

Kind of mine.	Kind of coal.						Total tonnage.
	Lump.		Nut and slack.		Mine run.		
	Tons.	*Per ct.*	*Tons.*	*Per ct.*	*Tons.*	*Per ct.*	
Cherokee-Crawford district:							
Strip mines	158,145	20.0	242,142	30.6	390,871	49.4	791,158
Deep mines	1,907,307	34.1	2,014,603	36.1	1,671,805	29.9	5,593,715
Total	2,065,452	32.4	2,256,745	35.4	2,062,676	32.3	6,384,873
Osage and Leavenworth districts (combined):							
Strip mines							
Deep mines	59,496	17.0	11,215	3.2	279,492	79.8	350,203
Total	59,496	17.0	11,215	3.2	279,492	79.8	350,203
State:							
Strip mines	158,145	20.0	242,142	30.6	390,871	49.4	791,158
Deep mines	1,966,803	33.1	2,025,818	34.1	1,951,297	32.8	5,943,918
Total	2,124,948	31.5	2,267,960	33.7	2,342,168	34.8	6,735,076

In the 1915 report of the United States Geological Survey [8] some statistics of the distribution of bituminous coal by classes of consumers for Kansas are shown. From these the percentages of consumption shown in the following statement have been compiled:

	Per cent.
Railroad	46.2
Domestic and small steam trade	32.3
Industrial steam trade	18.2
Mine fuels	2.7
Special	.6
Total output (tons)	6,824,474

The following statistics of distribution of shipments of bituminous coal, by classes of consignees, October 5, 1918, to February 1, 1919, are taken from an unpublished manuscript of the Geological Survey, and are published by permission of that bureau:

	Per cent.
Railroad fuel	32.7
United States Government	1.2
State and county institutions	1.5
Public utilities, gas and electric	7.9
Retail dealers	8.5
Industries, including iron and steel	48.2
	100.0

The use of coal for domestic consumption introduces, to a greater or less extent, changes in the character of the seasonal demand. In Report No. 2 on Pennsylvania anthracite, the commission pointed

[8] Mineral Resources of the United States, 1915, Part II, pp. 471–472.

out the wide differences between the character of the demand for coal for domestic consumption and the demand for industrial use. Despite the marked seasonal fluctuations, the annual domestic demand is likely to be a fairly constant quantity from year to year. On the other hand, the industrial demand for coal, while not always subject to such extreme *seasonal* fluctuations as that of coal for domestic use, is likely to vary to a much greater extent from *year* to *year*, influenced as it is primarily by periods of industrial prosperity or depression.

Part II. 1918 costs and sales realizations.

1. Number and extent of operations covered.

The 1918 production of the 52 operators in Kansas from whom cost reports were obtained by the commission was as follows:

	Tons.	Per cent.
Cherokee-Crawford district:		
38 operators from whom costs were obtained for 12 months	6,467,673	91.3
9 operators from whom costs were obtained for less than the full 12 months (actual tonnage reported, 465,888 tons), estimated yearly tonnage	618,840	8.7
Total	7,086,513	100.0
Osage and Leavenworth districts (combined):		
3 operators from whom costs were obtained for 12 months	181,213	85.8
1 operator from whom costs were obtained for 12 months, but which were excluded for certain reasons	13,912	6.6
1 operator from whom costs were obtained for less than the full 12 months (actual tonnage reported, 10,665 tons), estimated yearly tonnage	15,996	7.6
Total	211,121	100.0
State:		
41 operators from whom costs were obtained for 12 months	6,648,886	91.1
1 operator from whom costs were obtained for 12 months but which were excluded for certain reasons	13,912	.2
10 operators from whom costs were obtained for less than the full 12 months (actual tonnage reported, 476,553 tons), estimated yearly tonnage	634,836	8.7
Total	7,297,634	100.0

The above figures are shown *inclusive* of power-house fuel for comparison with the United States Geological Survey statistics. The total output of the 41 operators from whom costs were obtained for 12 months was, *exclusive* of power-house fuel, 6,454,500 tons.

No returns for 1918 were received from shaft-mine operators in the Lightning Creek or upper thin vein in Cherokee and Crawford Counties. Returns for all or part of 1918 were received from two operators in the Osage district. The returns of the one operator from whom reports were received for the 12 months (covering a tonnage of 10,097 tons) have been included with those of the Leavenworth district in order to avoid making possible the identification of his particular costs.

According to statistics issued by the Geological Survey the output of Kansas during 1918 was 7,561,947 tons, of which 200,259 tons were used at the mine for steam and heat. The commission obtained cost

information on 7,139,351 tons produced in 1918 (including power-house fuel), forming 94 per cent of the total as reported by the Survey. It publishes in this report cost information on 6,454,500 tons of commercial production, which is 88 per cent of the output reported by the Survey, after the exclusion of mine fuel.

2. Classification of producers by number of mines operated.

The costs of the 41 operators shown in the tabulations for Kansas cover the output of 89 mines. The following table shows the number of mines operated by the different producers:

TABLE 26.—*Number of mines operated by different producers in Kansas.*

Number of mines run by each operator.	Number of operators.	Proportion of total number.	Production tonnage, 1918.	Proportion of total production.
Cherokee-Crawford district:		*Per cent.*	*Tons.*	*Per cent.*
1 mine	22	58.0	1,045,268	16.7
2 mines	7	18.4	683,237	10.8
3 mines	3	7.9	566,406	9.0
5 mines	1	2.6	463,889	7.4
6 mines	1	2.6	848,328	13.5
7 mines	3	7.9	2,164,283	34.5
9 mines	1	2.6	508,963	8.1
Total (number of mines, 86)	38	100.0	6,280,374	100.0
Osage and Leavenworth districts (combined):				
1 mine	3	100.0	174,126	100.0
State:				
1 mine	25	61.1	1,219,394	18.9
2 mines	7	17.1	683,237	10.6
3 mines	3	7.3	566,406	8.8
5 mines	1	2.4	463,889	7.2
6 mines	1	2.4	848,328	13.1
7 mines	3	7.3	2,164,283	33.5
9 mines	1	2.4	508,963	7.9
Total (number of mines, 89)	41	100.0	6,454,500	100.0

It should be noted that 25 producers (61.1 per cent of the total number shown in the table) operated only one mine and produced about 19 per cent of the output. On the other hand, six producers (14.5 per cent of the total number) operated five or more mines, and produced about 62 per cent of the output. The following statement shows the average number of mines operated by a producer, and the average production per mine operated by one-mine operators and by operators of two or more mines, for each district and for the State of Kansas:

District.	Average number of mines operated by a producer.	Average production per mine operated by—		
		One-mine operators.	Operators of two or more mines.	All operators combined.
		Tons.	*Tons.*	*Tons.*
Cherokee-Crawford	2.3	47,512	81,799	73,028
Osage and Leavenworth (combined)	1.0	58,042	.....	58,042
State	2.2	48,776	81,799	72,522

The number and size of mines in Kansas are shown in further detail in the report for 1917 of the United States Geological Survey from which the following statistics are derived:[9]

Annual output of mines.	Mines.		Tonnage.	
	Number.	Proportion of total in State.	Average production per mine.	Proportion of total State output.
		Per cent.	*Tons.*	*Per cent.*
200,000 tons and over	4	2.2	216,047	12.1
100,000 to 199,999 tons	22	11.8	129,075	39.6
50,000 to 99,999 tons	28	15.1	75,200	29.3
10,000 to 49,999 tons	42	22.6	28,700	16.7
Under 10,000 tons	90	48.3	1,890	2.3
State	186	100.0	38,629	100.0

3. Classification of producers by size of output.

The 41 producers tabulated are classified by size of their output in 1918, exclusive of power-house fuel, as follows:

TABLE 27.—*Classification of 41 Kansas operators by size of output.*

Production during 1918.	Number of operators.	Proportion of total number.	Tonnage produced, 1918.	Proportion of total production.
Cherokee-Crawford District:		*Per cent.*	*Tons.*	*Per cent.*
Under 50,000 tons	14	36.9	449,941	7.2
50,000 to 99,999 tons	12	31.6	823,660	13.1
100,000 to 499,999 tons	7	18.4	1,485,199	23.7
500,000 to 999,999 tons	4	10.5	2,502,098	39.8
1,000,000 tons and over	1	2.6	1,019,476	16.2
Total	38	100.0	6,280,374	100.0
Osage and Leavenworth Districts (combined):				
Under 50,000 tons	1	33.3	10,097	5.8
50,000 to 99,999 tons	2	66.7	164,029	94.2
Total	3	100.0	174,126	100.0
State:				
Under 50,000 tons	15	36.6	460,038	7.1
50,000 to 99,999 tons	14	34.1	987,689	15.3
100,000 to 499,999 tons	7	17.1	1,485,199	23.0
500,000 to 999,999 tons	4	9.8	2,502,098	38.8
1,000,000 tons and over	1	2.4	1,019,476	15.8
Total	41	100.0	6,454,500	100.0

If the 10 operators from whom cost reports were received for less than the 12 months of 1918 and the one operator from whom reports were received but in unusable form be considered, it will be found that one operator had an estimated annual production of 375,700 tons and one other operator had an estimated annual production of 53,100 tons. The remaining nine operators had an average estimated an-

[9] Mineral Resources of the United States, 1917. Part II, pp. 947–948.

nual production of 24,428 tons. Had reports for the full 12 months' period been available from them, it would be found that 45 per cent of the operators produced about 10 per cent of the output.

4. The 1918 costs and sales realizations shown by districts.

There was no change in the official wage scale for bituminous coal miners in Kansas during 1918. Therefore, the labor costs per ton for the period were principally affected by changes in the production tonnage and not by changes in the rate of wages paid labor. The effect of decreased production in increasing labor costs can be clearly seen on Diagram III (opposite p. 80) and Charts 6 and 7 (opposite p. 82).

Tables 13 to 17 in the appendix to this report (see pp. 367–371) show the costs and sales realizations for operators in the Cherokee-Crawford district arranged from low to high in 10-cent groupings for each period shown. Throughout the tables for a given district the costs are shown for the same operators, but the costs of any given operator do not necessarily hold the same relative position in the 10-cent groups for each period. The shift of any operator in his relative position, from period to period, is generally slight.

The tables show, for each quarter and for the year as a whole, by 10-cent groupings, the tonnage produced at that cost, its per cent of the total production, the place of the group in the accumulated percentage, and the number of operators whose costs fell within each 10-cent group.

As there were only three operators who filed returns for the full 12 months in the Osage and Leavenworth districts (combined), no detailed appendix tables are shown for these districts.

A summary of the significant facts brought out in Appendix Tables 13 to 17 for the Cherokee-Crawford district, and similar facts for the Osage and Leavenworth districts, appears in the following tables, in which are compared the true average cost and sales realization, the range of 90 per cent of the output which had the lowest costs and sales realizations, and the extreme range for the entire output of the 41 operators:

TABLE 28.—*1918 quarterly and yearly revised costs and sales realization for 38 operators in Cherokee-Crawford district of the State of Kansas, showing averages and range for 90 per cent and for 100 per cent of total output.*

Period.	Costs per net ton.												Sales realization per net ton.		
	Labor.			Supplies.			General expense.			Total f. o. b. mine.					
	Average.	Range. 90 per cent output.	Range. 100 per cent output.	Average.	Range. 90 per cent output.	Range. 100 per cent output.	Average.	Range. 90 per cent output.	Range. 100 per cent output.	Average.	Range. 90 per cent output.	Range. 100 per cent output.	Average.	Range. 90 per cent output.	Range. 100 per cent output.
January-March	$1.94	$0.87-$2.20	$0.87-$2.58	$0.19	$0.06-$0.30	$0.06-$0.76	$0.32	$0.09-$0.37	$0.10-$0.65	$2.45	$1.42-$2.89	$1.51-$3.34	$2.84	$2.13-$2.95	$2.31-$3.24
April-June	1.95	.82- 2.37	.69- 2.90	.19	.07- .28	.07- .62	.32	.07- .41	.07- .62	2.46	1.37- 2.78	1.30- 3.40	2.86	2.13- 2.96	2.38- 3.16
July-September	1.97	.81- 2.23	.75- 2.99	.22	.07- .30	.07- .78	.31	.08- .39	.08- .55	2.50	1.58- 2.83	1.34- 3.48	2.94	2.13- 3.05	2.40- 3.13
October-December	2.15	1.16- 2.52	.79- 6.04	.30	.08- .37	.08- 1.32	.37	.08- .48	.11- 1.62	2.82	1.98- 3.18	1.54- 8.70	2.97	2.13- 3.08	2.40- 3.12
Year	2.00	.96- 2.30	.78- 2.87	.22	.06- .29	.06- 0.62	.33	.09- .41	.10- .60	2.55	1.72- 2.85	1.41- 3.36	2.90	2.13- 2.99	2.39- 3.17

TABLE 29.—*1918 quarterly and yearly revised costs and sales realization for 3 operators in Osage and Leavenworth districts (combined) of the State of Kansas, showing averages and range for 90 per cent and for 100 per cent of total output.*

Period.	Costs per net ton.												Sales realization per net ton.		
	Labor.			Supplies.			General expense.			Total f. o. b. mine.					
	Average.	Range. 90 per cent output.	Range. 100 per cent output.	Average.	Range. 90 per cent output.	Range. 100 per cent output.	Average.	Range. 90 per cent output.	Range. 100 per cent output.	Average.	Range. 90 per cent output.	Range. 100 per cent output.	Average.	Range. 90 per cent output.	Range. 100 per cent output.
January-March	$2.74	$2.58-$2.92	$2.58-$3.20	$0.23	$0.16-$0.26	$0.16-$0.66	$.41	$0.23-$0.52	$0.23-$0.52	$3.38	$3.26-$3.41	$3.26-$4.27	$3.80	$3.66-$3.78	$3.66-$4.89
April-June	2.88	2.71- 3.07	2.71- 3.26	.19	.15- .22	.15- .60	.40	.26- .47	.26- .47	3.47	3.33- 3.55	3.33- 4.26	3.79	3.65- 3.86	3.65- 4.22
July-September	3.00	2.90- 3.02	2.90- 3.55	.26	.23- .27	.23- .43	.43	.37- .49	.37- .49	3.69	3.62- 3.66	3.62- 4.39	3.90	3.84- 3.86	3.84- 4.57
October-December	3.25	3.05- 3.50	3.05- 3.74	.22	.19- .22	.19- .55	.51	.41- .52	.41- .52	3.98	3.76- 4.24	3.76- 4.70	3.94	3.87- 3.94	3.87- 4.70
Year	2.96	2.81- 3.10	2.81- 3.44	.23	.17- .25	.17- .55	.43	.34- .51	.34- .51	3.62	3.49- 3.69	3.49- 4.40	3.86	3.77- 3.84	3.77- 4.62

The following table of yearly averages is given for the sake of ready comparison of the three districts:

TABLE 30.—*Average costs and sales realizations of Kansas districts for the year 1918.*

District.	Production.	Costs per ton.				Sales realization per ton.	Margin per ton.
		Labor.	Supplies.	General expense.	Total f. o. b. mine.		
	Tons.						
Cherokee-Crawford	6,280,374	$2.00	$0.22	$0.33	$2.55	$2.90	$0.35
Osage and Leavenworth districts (combined)	174,126	2.96	.23	.43	3.62	3.86	.24

The labor cost for the Osage and Leavenworth districts (combined) was much higher than that for the Cherokee-Crawford district. This is due in a large degree to the differences in the thickness of seam mined, and to some extent also is attributable to differences in the mining methods followed. As will be noted from the tabulation of thickness of seam (see Table 33, p. 84), all of the output of the Osage and Leavenworth districts (combined) came from seams which averaged less than 2 feet thick, while the proportion of output from such seams was but 2.7 per cent in the Cherokee-Crawford district.

Another important cause of the differences in labor cost between the districts is due to the various systems of mining employed.

A part of the output came from "strip pits," sometimes called "stripping mines," which are open workings conducted much after the manner of stone quarries. The "overburden" or earth and rock overlying the coal seam is first removed (generally by steam shovel), and the exposed coal is then broken up, often by explosives, and is then prepared for market about like coal from "deep mines" (which may be shaft, slope, or drift mines) by means of mechanical cleaning, screening, and sizing machinery, before loading on railroad cars, or sometimes it is loaded without further preparation directly into railroad cars for transportation to destination.

The following statistics, compiled from the Annual Report of the Inspection of Coal Mines and Coal Production of Kansas for the calendar year 1916, show the distribution of strip and deep mines, and their output, during 1916:

District.	Strip pits.			Deep mines.			Total.	
	Number of mines.	Tonnage.	Per cent of total output.	Number of mines.	Tonnage.	Per cent of total output.	Number of mines.	Tonnage.
Cherokee-Crawford	20	770,495	12.1	101	5,614,378	87.9	121	6,384,873
Osage and Leavenworth (combined)				32	350,203	100.0	32	350,203
State	20	770,495	11.4	133	5,964,581	88.6	153	6,735,076

According to the United States Geological Survey's 1917 Annual Report (p. 943) the tonnage taken from "steam shovel open-pit" mines in Kansas was 858,370 tons in 1916 and 806,985 tons in 1917.

A detailed analysis of the differences shown in the commission's 1918 tables between the labor cost per ton in strip pits and deep mines will be found under the discussion of costs by thickness of seam mined (see p. 83). To show readily their bearing on the interpretation of the figures shown in Table 30 the following statistics (shown in more detail on p. 85) are also given here:

District and nature of operation.	Number of operators.	1918 production.	Costs per ton.	
			Labor.	Total f. o. b. mine.
Cherokee-Crawford district:		*Tons.*		
Strip pits	[1] 12	655,193	$1.17	$1.97
Deep mines	[1] 27	5,625,181	2.09	2.61
Total	[1] 38	6,280,374	2.00	2.55
Osage and Leavenworth districts (combined): Deep mines	3	174,126	2.96	3.62

[1] One operator who had both stripping and deep mining operations is included under both strip pits and deep mines, so that the total number of operators is only 38.

It will be noted that about 10 per cent of the output reported for the Cherokee-Crawford district came from the relatively low cost strip pits, while in the Osage and Leavenworth districts (combined) no reports from strip pits were received.

The use of machines in mining coal in the respective districts is not an important factor in cost differentials. The proportion of the total production of the State, mined by machines, is stated by the United States Geological Survey to have been one-half of 1 per cent in 1917.[10]

5. Relation of the costs to the sales realizations.

The following table shows the distribution, by quarters and for the year 1918, between the items of labor, supplies, general expense,

[10] Mineral Resources of the United States, 1917 Part II p. 941.

and margin of each dollar of sales realization received by the operator:

TABLE 31.—*Distribution of the amount paid by the purchaser between the various principal costs and the margin, based on each dollar of sales realization, for the Cherokee-Crawford, and Osage and Leavenworth (combined) districts in Kansas, 1918, by quarters and for the year.*

Period.	Costs.				Margin.
	Labor.	Supplies.	General expense.	Total f. o. b. mine.	
Cherokee-Crawford district:	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*
January-March	68	7	11	86	14
April-June	68	7	11	86	14
July-September	67	7	11	85	15
October-December	72	10	13	95	5
Total	69	8	11	88	12
Osage and Leavenworth districts (combined):					
January-March	72	6	11	89	11
April-June	76	5	11	92	8
July-September	77	7	11	95	5
October-December	82	6	13	[1] 101	[1] 1
Total	77	6	11	94	6

[1] Total f. o. b. mine cost exceeded the sales realization.

These facts are shown in graphic form in Chart 8 (opposite).

6. *Comparison of claimed and revised costs.*

The foregoing tables present costs which have in some cases been revised by the accountants of the commission from the claimed figures reported on the original schedules by the operators. Table 18 in the appendix to this report shows the claimed 1918 costs for the Cherokee-Crawford district, compiled in all cases directly from the figures submitted by the operators.

The changes brought about through the revision in the average costs for the year 1918 for the 41 operators were as follows:

Item.	Claimed costs.	Revised costs.	Increase (I) or decrease (D) due to revision.
Cherokee-Crawford district:			
Production (tons)	6,467,673	6,280,374	[1] 187,299 (D)
Labor ... per ton	$1.94	$2.00	$0.06 (I)
Supplies ... do	.29	.22	.07 (D)
General expense ... do	.37	.33	.04 (D)
Total f. o. b. mine ... do	2.60	2.55	.05 (D)
Osage and Leavenworth districts (combined):			
Production (tons)	181,213	174,126	[1] 7,087 (D)
Labor ... per ton	$2.84	$2.96	$0.12 (I)
Supplies ... do	.33	.23	.10 (D)
General expense ... do	.46	.43	.03 (D)
Total f. o. b. mine ... do	3.63	3.62	.01 (D)
State:			
Production (tons)	6,648,886	6,454,500	[1] 194,386 (D)
Labor ... per ton	$1.96	$2.02	$0.06 (I)
Supplies ... do	.29	.22	.07 (D)
General expense ... do	.37	.34	.03 (D)
Total f. o. b. mine ... do	2.62	2.58	.04 (D)

[1] Due to exclusion of power-house fuel.

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CHART 6. — Production tonnage, by quarters for 1918, of 41 Operators by producing Districts in Kansas.

CHART 8. — Distribution of Amount paid by purchaser between the various principal Costs and the Margin, based on each dollar of Sales Realization, by quarters in 1918, in Kansas.

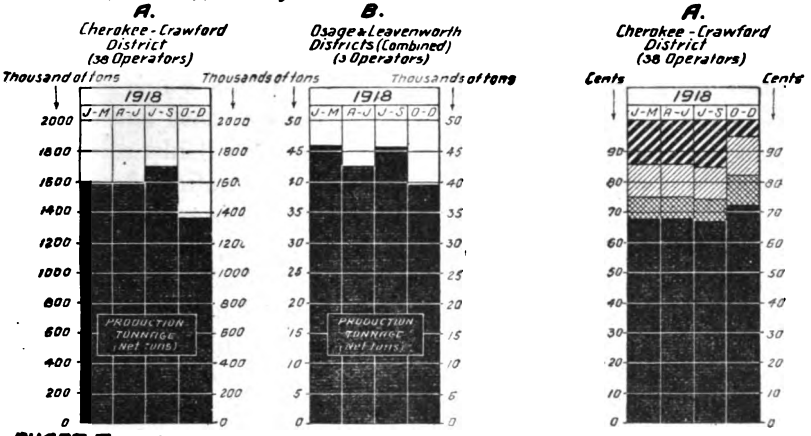
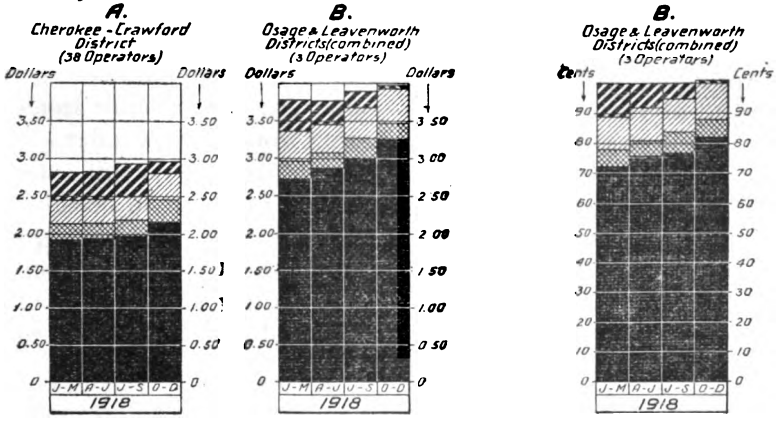


CHART 7. — Average Costs and Sales Realizations per ton, by quarters for 1918, of 41 Operators by producing Districts in Kansas.



The increase of 6 cents in the average State revised labor cost over the claimed was caused by the use of the revised production tonnage as a divisor. The total claimed labor cost was $13,058,992 and the total revised labor cost was $13,059,831. The chief revision took place in the item of supplies resulting in a decrease of 7 cents per ton.

Costs claimed by some of the operators were obviously open to question as to their accuracy. Such operators were required by the commission to furnish further detailed information in support of the claimed costs. Examination of the data submitted by them revealed the fact that they had frequently included such items as maintenance and contingent reserves, etc. In some instances the costs had been inflated principally through the inclusion of officers' salaries which were far in excess of those paid in neighboring operations of similar size, and by excessive charges for the items of depletion and depreciation, which had not been computed in accordance with the rules prescribed in the instructions of the commission.

Under the heading of supplies the revision of 7 cents was due partly to the inclusion by operators of items which should have been treated as additions to capital, and partly to the inclusion of power-house fuel at a price greatly in excess of cost of production.

The chief instances of revision affected one operator and involved less than 1 per cent of the total tonnage of the State.

7. 1918 costs shown by thickness of seam mined.

About 81 per cent of the output of Kansas came from 16 producers who operated more than one mine. Most of these producers did not report the costs of each mine separately. In order to include them in a tabulation to show costs by thickness of seam it was necessary to use the average of the seams mined by them. This has led to the inclusion of data in the tabulation for the 41 operators, which to a slight extent vitiates its scientific value, since it is not known whether equal tonnage was derived from mines which had seams above or below the average thickness. The tabulation by thickness of seam for the 41 operators follows:

TABLE 32.—*Seam tabulation of revised costs for 41 operators in Kansas.*

Thickness of seam.[1]	Number of operators.	Production, 1918.	Costs per ton.			
			Labor.	Supplies.	General expense.	Total f. o. b. mine.
Cherokee-Crawford district:		*Tons.*				
12 to 23 inches	4	168,351	$1.37	$0.49	$0.36	$2.22
24 to 35 inches	12	1,626,885	2.01	.19	.33	2.53
36 to 47 inches	22	4,485,138	2.02	.22	.32	2.56
Total	38	6,280,374	2.00	.22	.33	2.55

[1] Where two or more mines were operated by one producer the average thickness of seams was used.

TABLE 32.—*Seam tabulation of revised costs for 41 operators in Kansas.*—Cont.

Thickness of seam.[1]	Number of operations.	Production, 1918.	Costs per ton.			
			Labor.	Supplies.	General expense.	Total f. o. b. mine.
Osage and Leavenworth districts (combined): 12 to 23 inches	3	*Tons.* 174,126	$2.96	$0.23	$0.43	$3.62
State:						
12 to 23 inches	7	342,477	2.18	.35	.40	2.93
24 to 35 inches	12	1,626,885	2.01	.19	.33	2.53
36 to 47 inches	22	4,485,138	2.02	.22	.32	2.56
Total	41	6,454,500	2.02	.22	.34	2.58

[1] Where two or more mines were operated by one producer the average thickness of seams was used.

The following table shows the distribution of the output of the 41 operators between the different seams:

TABLE 33.—*Distribution, between seams, of output of 41 operators in Kansas.*

Thickness of seam.	38 operators, producing 6,280,374 tons in 1918.	
	Number of operators.	Per cent of output.
Cherokee-Crawford district:		
12 to 23 inches	4	2.7
24 to 35 inches	12	25.9
36 to 47 inches	22	71.4
Total	38	100.0
	3 operators, producing 174,126 tons in 1918.	
Osage and Leavenworth districts (combined): 12 to 23 inches	3	100.0
	41 operators, producing 6,454,500 tons in 1918.	
State:		
12 to 23 inches	7	5.3
24 to 35 inches	12	25.2
36 to 47 inches	22	69.5
Total	41	100.0

In the foregoing tables no distinction has been made between the reports from operators of strip pits, and those from operators of deep mines. In the following tables these two classes of operations are shown separately.

TABLE 34.—*Comparison of cost of strip pits with deep mines, 1918.*

Thickness of seam.	Strip pits.				Deep mines.			
	Number of operators.	Production.	Costs per ton.		Number of operators.	Production.	Costs per ton.	
			Labor.	Total f. o. b. mine.			Labor.	Total f. o. b. mine.
Cherokee-Crawford district:		*Tons.*				*Tons.*		
12 to 23 inches	4	168,351	$1.37	$2.22	.....	.....	.....	.....
24 to 35 inches	1	64,306	1.17	2.13	11	1,562,579	$2.04	$2.55
36 to 47 inches	7	422,536	1.10	1.85	16	4,062,602	2.12	2.64
Total	12	655,193	1.17	1.97	27	5,625,181	2.09	2.61
Osage and Leavenworth districts (combined): 12 to 23 inches	.....	.....	.....	.....	3	174,126	2.96	3.62

The much lower labor cost for strip pits than for the deep mines operating in the same general thickness of seam is particularly noticeable. In the case of the output from strip pits, in the Cherokee-Crawford district, the labor cost per ton decreased with the increase in the thickness of seam. In the case of the output from the deep mines in that district the labor cost on the output from seams 2 to 3 feet thick was lower than that from seams 3 to 4 feet thick, due perhaps to the fact that in the former group is included one strip pit operation which was reported in combination with two deep mine operations.

Part III. Comparative costs and sales realizations, August, 1917–December, 1918.

1. Representativeness of statistics presented.

Representative figures were not obtained by the commission for costs and sales realizations prior to August, 1917, in the various Kansas districts. Use has, therefore, been made of the monthly reports covering the last five months of 1917. Nearly every one of the operators that appears in the 1917 appears also in the 1918 figures, but there are a few unimportant exceptions, which do not affect the general comparability of the 1917 figures with those of 1918. The average total f. o. b. mine costs, sales realizations, and margins of about 90 per cent of the entire output mined in the districts are presented for these districts.

2. The revised costs, sales realizations, and production figures, and analyses of the fluctuations, by districts, August, 1917–December, 1918.

CHEROKEE–CRAWFORD DISTRICT.

The significance of the seven periods selected for presenting the figures for August, 1917–December, 1918, for the Cherokee–Crawford district is as follows:

August, 1917.—The greater part of this month was prior to the fixing, by Executive order of August 21, 1917, of maximum prices for bituminous coal not sold under contracts made prior to that date, and the establishment of a Fuel Administration to regulate the fuel situation.

September–October, 1917.—This period directly followed the fixing, by Executive order of August 21, 1917, of maximum prices for bituminous coal not sold under contracts made prior to that date and the establishment of a Fuel Administration to regulate the fuel situation. The 1917 wage scale continued in operation during these two months.

November–December, 1917.—This period directly followed the increase in maximum prices allowed by Executive order in consequence of the adoption of a new wage scale (1917–18) which was higher than that adopted earlier in 1917.

January–March, 1918.—During this period the prices fixed November 1, 1917, continued. The number of operators in the district from whom 1918 figures were obtained was less than that from whom August–December, 1917, figures were available.

April, 1918.—Beginning with this period practically the entire output of coal, whether sold under contract or not, was subject to the governmental maximum prices.

May, 1918.—This period followed the 15-cent per ton increase, effective April 20, 1918, made by the Fuel Administration in the maximum prices established for the district.

June–December, 1918.—This period followed the reduction made by the Fuel Administration of 10 cents per ton, effective May 25, 1918, in the maximum prices for the district. Throughout this period the official maximum prices remained unchanged, and the 1917–18 wage scale continued in effect.

TABLE 35.—*Revised costs and sales realizations of operators in the Cherokee-Crawford district of Kansas, August, 1917–December, 1918.*

Period.	Number of operators.	Production.	Total f. o. b. mine cost per ton.	Sales realization per ton.	Margin per ton.
		Tons.			
August, 1917	41	485,476	$2.05	$2.42	$0.37
September–October, 1917	41	945,979	2.09	2.44	.35
November–December, 1917	41	1,057,916	2.36	2.85	.49
January–March, 1918	38	1,594,815	2.45	2.84	.39
April, 1918	38	467,295	2.54	2.81	.27
May, 1918	38	551,752	2.44	2.87	.43
June–December, 1918	38	3,666,512	2.61	2.94	.33

On August 21, 1917, the Government first fixed prices under the Lever Act. The prices fixed by Executive order for the sale of coal not then under contract in this district on August 21, 1917, were as follows: Run of mine, $2.55; prepared sizes, $2.80; slack, $2.30. The average proportions which these three classes of coal formed of the total output, based on actual returns for all operators in this district who reported to the Federal Trade Commission during the period, August–December, 1917, were as follows: Run of mine, 19 per cent; prepared sizes, 52 per cent; slack, 29 per cent. Had the entire output of the 41 operators been sold at the prices established August 21, 1917, it would have brought them a sales realization of $2.61 per ton. The 41 operators actually received, during September–October, 1917, a sales realization of $2.44 per ton, which was 2 cents more than they received during August ($2.42 per ton). The average total f. o. b. mine cost of the 41 operators was, for September–October, 1917, $2.09 per ton (an increase of 4 cents over August), while their average monthly tonnage was 472,990 tons (a decrease from that in August—485,476 tons). Their margin during September–October was 35 cents per ton—a decrease of 2 cents from August.

Effective November 1, 1917, a 45-cent increase in the established maximum prices was allowed by Executive order to take care of an increase in the wage scale which went into effect at that time. The average f. o. b. mine cost of the 41 operators for November–December, 1917 ($2.36 per ton), increased 27 cents over that for September–October, 1917, this increase being principally attributable to the higher wage scale. The output increased to an average of 528,958 tons per month. Their average sales realization for November–December, 1917, was $2.85 per ton (an increase of 41 cents), and their margin 49 cents per ton (an increase of 14 cents).

During January–March, 1918, the average total f. o. b. mine cost of the 38 operators who reported for the 12 months in 1918 was $2.45 per ton; their sales realization $2.84, and their margin 39 cents per ton. Their total f. o. b. mine cost during April, 1918, was

$2.54 per ton (an increase of 9 cents over that for January–March). Their production in April showed a decrease, being 467,295 tons, as compared with an average for January–March of 531,605 tons. Their sales realization was $2.81 (a decrease of 3 cents), and their margin 27 cents per ton (a decrease of 12 cents). Effective April 20, 1918, the Fuel Administration made a 15-cent per ton increase in the existing maximum prices for the district. The total f. o. b. mine cost of the 38 operators during May, 1918, was $2.44 per ton (a decrease of 10 cents from that of April). There was a marked increase in the output, the production in May being 551,752 tons. Their sales realization in May was $2.87 (an increase of 6 cents), and their margin 43 cents per ton (an increase of 16 cents).

Effective May 25, 1918, the Fuel Administration made a reduction of 10 cents per ton in the official maximum prices for the district. During the period June–December, 1918, there was no change in the official maximum prices for this district. The 38 operators had an average f. o. b. mine cost of $2.61 per ton, an increase of 17 cents per ton over May. Their production during the last seven months was lower than that of May, averaging 523,787 tons per month. Their average sales realization for June–December, 1918, was $2.94 per ton (an increase of 7 cents), and their margin 33 cents per ton (a decrease of 10 cents).

LEAVENWORTH DISTRICT.

The significance of the seven periods selected for presenting the figures for August, 1917–December, 1918, for the Leavenworth district is as follows:

The first five periods (August, September–October, November–December, 1917; January–March and April, 1918) have been described under Cherokee-Crawford district (see p. 86).

May, 1918.—This period followed the change, effective April 20, 1918, made by the Fuel Administration in the maximum prices established for this district.

June–December, 1918.—This period has been described under Cherokee-Crawford district.

TABLE 36.—*Revised costs and sales realizations of operators in the Leavenworth district in Kansas, August, 1917–December, 1918.*

Period.	Number of operators.	Production.	Total f. o. b. mine cost per ton.	Sales realization per ton.	Margin per ton.
		Tons.			
August, 1917	2	14,124	$2.73	$3.11	$0.38
September–October, 1917	2	30,822	2.73	3.18	.45
November–December, 1917	2	33,351	3.27	3.80	.53
January–March, 1918	2	43,270	3.32	3.73	.41
April, 1918	2	12,730	3.45	3.80	.35
May, 1918	2	14,489	3.39	3.76	.37
June–December, 1918	2	93,540	3.73	3.86	.13

On August 21, 1917, the Government first fixed prices under the Lever Act. The prices fixed by Executive order for the sale of coal not then under contract in this district on August 21, 1917, were as follows: Run of mine, $2.55; prepared sizes, $2.80; slack, $2.30. The average proportions which these three classes of coal formed of the total output, based on actual returns for all operators in this district who reported to the Federal Trade Commission during the period August–December, 1917, were as follows: Run of mine, 4 per cent; prepared sizes, 77 per cent; slack, 19 per cent. Had the entire output of the two operators been sold at the prices established August 21, 1917, it would have brought them a sales realization of $2.70 per ton. The two operators actually received, during September–October, 1917, a sales realization of $3.18 per ton, which was 7 cents more than they received during August ($3.11 per ton). The average total f. o. b. mine cost of the two operators was, for September–October, 1917, $2.73 per ton, the same as August, while their average monthly tonnage was 15,411 tons—an increase over that in August (14,124 tons). Their margin during September–October was 45 cents per ton—an increase of 7 cents over August.

Effective November 1, 1917, a 45-cent increase in the established maximum prices was allowed by Executive order, to take care of an increase in the wage scale which went into effect at that time. The average f. o. b. mine cost of the two operators for November–December, 1917 ($3.27 per ton), increased 54 cents over that for September–October, 1917, this increase being principally attributable to the higher wage scale. The output increased to an average of 16,675 tons per month. Their average sales realization for November–December, 1917, was $3.80 per ton (an increase of 62 cents), and their margin 53 cents per ton (an increase of 8 cents).

During January–March, 1918, the average total f. o. b. mine cost of these same two operators was $3.32 per ton—an increase of 5 cents over that of November–December, 1917. The average monthly tonnage decreased, being 14,423 tons in January–March, 1918. Their sales realization in January–March was $3.73 (a decrease of 7 cents), and their margin 41 cents per ton (a decrease of 12 cents). The total f. o. b. mine cost of the two operators during April, 1918, was $3.45 per ton—an increase of 13 cents over that for January–March. Their production in April showed a decrease, being 12,730 tons as compared with an average for January–March of 14,423 tons. Their sales realization was $3.80 (an increase of 7 cents), and the margin 35 cents per ton (a decrease of 6 cents). Effective April 20, 1918, the Fuel Administration made a change in the existing maximum prices for the district. The new prices (including the Nov. 1, 1917, price increase because of the wage increase) were as follows: Run of mine, $3.40; prepared sizes, $3.65; slack, $2.90. Applying to

these prices the proportions (already stated), which these three classes of coal form of the total output, a sales realization of $3.50 per ton was possible had the entire output been sold at the maximum prices. The total f. o. b. mine cost of the two operators in May was $3.39 per ton—a decrease of 6 cents from the average for April ($3.45). Their output in May was 14,489 tons—an increase over that of April, which was 12,730 tons. Their sales realization in May was $3.76 per ton (a decrease of 4 cents from April), and their margin was 37 cents per ton (an increase of 2 cents).

Effective May 25, 1918, the Fuel Administration made a reduction of 10 cents per ton in the official maximum prices for the district. During the period June–December, 1918, there was no change in the official maximum prices for this district. The two operators had an average f. o. b. mine cost of $3.73 per ton—an increase of 28 cents per ton over April and 34 cents over May. Their production during the last seven months was higher than that of April and lower than that of May, averaging 13,363 tons per month. The average sales realization of the two operators for June–December, 1918, was $3.86 per ton, and their margin 13 cents per ton.

CHAPTER IV.—MISSOURI.

Part I. Introduction.

1. Definition of the various producing districts or fields.

The distribution of output between the various coal-producing districts in Missouri has been made in accordance with the areas or the seams included in those districts as defined by the Fuel Administration in its orders effective October 1, 1917, and April 20, 1918. The output comprised in the different districts is as follows:

District No. 1 includes Audrain, Barton, Bates, Calloway, Henry, Johnson, Monroe, Randolph, Ralls, St. Clair, Schuyler, Vernon, and Montgomery Counties; Adair County, except operations of the Star Coal Co.; and Macon County east of New Cambria, and mining operations not covered by other rulings.

District No. 2 includes Boone, Clay, Cooper, Chariton, Carroll, Dade, Harrison, Linn, Lafayette, Putnam, Ray, and Sullivan Counties, and Macon County west of New Cambria, and the long-wall thin-seam mines in Randolph County.

Grundy-Lightning Creek district includes Grundy County, operations of the Star Coal Co. in Adair County, and shaft workings in the Lightning Creek or upper thin vein in Barton, Bates, and Vernon Counties; also mines at Leavenworth Kans., where the major portion of the coal is mined in the State of Missouri, which are to be regarded as Missouri mines.[11]

Platte district includes Platte County.

Since the Fuel Administration gave no specific titles to the last two districts, the foregoing descriptive titles are used in this report.

The location of these districts is shown on the map of Missouri (facing p. 42).

2. General statistics of output.

The statistics in this section for coal produced in Missouri have been compiled from reports published by the United States Geological Survey.

The proportion which the output of Missouri has formed of the total bituminous coal output of the United States is as follows:

	Per cent.		Per cent.
1911	0.9	1915	0.9
1912	1.0	1916	.9
1913	.9	1917	1.0
1914	.9	1918	1.0

[11] Fuel Administration's order effective Oct. 1, 1917.

The following statement shows the proportions which the output of the various districts formed of the State total:

Year.	Production.	Proportion of total produced in each district.		
		District No. 1.	District No. 2.	Grundy and Platte Counties.
	Tons.	*Per cent.*	*Per cent.*	*Per cent.*
1911	3,836,107	48	47	5
1912	4,339,856	50	46	4
1913	4,318,125	52	43	5
1914	3,935,980	50	45	5
1915	3,811,593	52	44	4
1916	4,742,146	52	44	4
1917	5,670,549	53	43	4

The United States Geological Survey has collected information on the "average value per ton" for a long series of years. This average is obtained by dividing the total selling value by the total tonnage.[12]

The following table shows this information for 1911–1917:

TABLE 37.—*Production and average value, 1911–1917, by producing districts and State of Missouri.*

Year.	District No. 1.		District No. 2.		Grundy and Platte Counties.		State.	
	Production.	Average value per ton.	Production.	Average value per ton.	Production.	Average value per ton.	Production.	Average value per ton.
	Tons.		*Tons.*		*Tons.*		*Tons.*	
1911	1,832,472	$1.62	1,822,306	$1.80	181,329	$2.01	3,836,107	$1.72
1912	2,157,097	1.66	1,981,344	1.84	201,415	2.02	4,339,856	1.76
1913	2,227,742	1.63	1,882,579	1.83	207,804	1.91	4,318,125	1.73
1914	1,969,306	1.63	1,785,139	1.82	181,535	1.94	3,935,980	1.73
1915	1,999,759	1.64	1,660,975	1.82	150,859	1.93	3,811,593	1.73
1916	2,471,474	1.85	2,098,521	1.96	172,151	2.07	4,742,146	1.91
1917	3,018,190	2.35	2,412,029	2.49	240,330	2.65	5,670,549	2.43

In its reports for 1916 and 1917 the Geological Survey published "average values" in more detail than in previous reports. The fol-

[12] "The value of coal given in this report is the realization value at the mine f. o. b. cars, and the average value per ton is the average realization price obtained by dividing the total value by the number of tons sold or produced. The coal used at the mine, the coal coked by the producing company, and the coal used in some other industry by the company operating the mine—an appreciable proportion of the whole—is never sold, and the value placed upon it is either an estimate or the figure at which it is carried on the books, either of which is supposedly based on what the coal would have brought if sold or what other fuel for the respective purpose would have cost if its purchase had been necessary. In other words, the values given represent returns to the operators for coal sold, plus estimated exchange value of that not sold. These figures do not necessarily show prices or even an average of the prices of coal at the mine." U. S. Geological Survey. (Mineral Resources of the United States, 1917, Part II, page 952.)

lowing table is compiled from statistics appearing in the 1916 and 1917 reports:

TABLE 38.—*Disposition of production and average values, by producing districts and State of Missouri, 1916–17.*

District.	Loaded at mines for shipment.				Sold to local trade and used by employees.			
	1916		1917		1916		1917	
	Production.	Average value per ton.	Production.	Average value per ton.	Production.	Average value per ton.	Production.	Average value per ton.
	Tons.		*Tons.*		*Tons.*		*Tons.*	
No. 1	2,248,985	$1.83	2,624,189	$2.34	179,314	$2.16	297,662	$2.52
No. 2	1,884,003	1.93	2,177,511	2.48	175,204	2.44	186,980	2.80
Grundy and Platte Counties	86,426	2.08	140,989	2.62	81,350	2.11	91,437	2.73
State	4,219,414	1.88	4,942,689	2.41	435,868	2.26	576,079	2.65

District.	Used at mines for steam and heat.				Total.			
	1916		1917		1916		1917	
	Production.	Average value per ton.	Production.	Average value per ton.	Production.	Average value per ton.	Production.	Average value per ton.
	Tons.		*Tons.*		*Tons.*		*Tons.*	
No. 1	43,175	$1.41	96,339	$2.30	2,471,474	$1.85	3,018,190	$2.35
No. 2	39,314	1.59	47,538	2.04	2,098,521	1.96	2,412,029	2.49
Grundy and Platte Counties	4,375	1.10	7,904	2.01	172,151	2.07	240,330	2.65
State	86,864	1.47	151,781	2.20	4,742,146	1.91	5,670,549	2.43

3. Character of the consumption of Missouri coal.

As is the case in many of the coal fields west of the Middle Atlantic States, a considerable portion of the output of bituminous coal in Missouri goes into domestic consumption. The proportion thus used varied from district to district, and is influenced partly by the nature of the coal, partly by the availability of substitutes, and partly by the extent of preparation given the coal for the purpose of adapting it to domestic use.

The exact extent to which the coal from this State enters into domestic use is not defintely ascertainable from any figures at present available. In the 1915 report of the United States Geological Survey[12] some statistics of the distribution of bituminous coal by classes of consumers, for Missouri, are shown. From these the

[12] Mineral Resources of the United States, 1915. Part II, pp. 471–472.

percentages of consumption shown in the following statement have been compiled:

	Per cent.
Railroad	61.7
Steamship bunker	----
Coke	----
Gas	----
Domestic and small steam trade	28.2
Industrial steam trade	7.9
Exported	----
Mine fuels	2.2
Special	----
Total output (tons)	3,811,593

The following statistics of distribution of shipments of bituminous coal, by classes of consignees, October 5, 1918, to February 1, 1919, are taken from an unpublished manuscript of the Geological Survey and are published by permission of that bureau:

	Per cent.
Railroad fuel	38.7
United States Government	2.1
State and county institutions	.4
Public utilities, gas and electric	7.7
Retail dealers	14.0
Industries, including iron and steel	37.1
	100.0

This use of coal for domestic consumption introduces, to a greater or less extent, changes in the character of the seasonal demand. In Report No. 2, on Pennsylvania anthracite, the commission pointed out the wide differences between the character of the demand for coal for domestic consumption and the demand for industrial use. If the coal is of a nature which can be stored without undue fire risk, and if the domestic consumer can be induced to buy his coal during the summer, the domestic demand has a less seasonal character than where such conditions do not exist. Despite the marked seasonal fluctuations, the annual domestic demand in likely to be a fairly constant quantity from year to year. On the other hand, the industrial demand for coal, while not always subject to such extreme seasonal fluctuations as that of coal for domestic use, is likely to vary to a much greater extent from year to year, influenced as it is primarily by periods of industrial prosperity or depression.

Part II. 1918 costs and sales realizations.

1. Number and extent of operations covered.

The 1918 production of the 64 operators in Missouri, from whom cost reports were obtained by the commission, was as follows:

	Tons.	Per cent.
District No. 1:		
24 operators from whom costs were obtained for 12 months	2,107,480	71.7
1 operator from whom costs were obtained for 12 months, but which were excluded for certain reasons	40,041	1.4
14 operators from whom costs were obtained for less than the full 12 months (actual tonnage reported, 499,592 tons), estimated yearly tonnage	792,312	26.9
Total	2,939,833	100.0
District No. 2:		
20 operators from whom costs were obtained for 12 months	2,110,448	95.6
5 operators from whom costs were obtained for less than the full 12 months (actual tonnage reported, 48,982 tons), estimated yearly tonnage	96,756	4.4
Total	2,207,204	100.0
State:		
44 operators from whom costs were obtained for 12 months	4,217,928	82.0
1 operator from whom costs were obtained for 12 months, but which were excluded for certain reasons	40,041	.8
19 operators from whom costs were obtained for less than the full 12 months (actual tonnage reported, 548,574 tons), estimated yearly tonnage	889,068	17.2
Total	5,147,037	100.0

The above figures are shown *inclusive* of power-house fuel for comparison with the United States Geological Survey statistics. The total output of the 45 operators from whom costs were obtained for 12 months was, *exclusive* of power-house fuel, 4,078,087 tons.

Returns were received from one operator in the Grundy-Lightning Creek district, but to avoid identification of his costs no figures are shown. No returns covering the entire 12 months of 1918 were received from any operators in the Platte district.

According to statistics issued by the Geological Survey the output of Missouri during 1918 was 5,667,730 tons, of which 162,243 tons were used at the mine for steam and heat. The commission obtained cost information on 4,806,543 tons produced in 1918 (including power-house fuel), forming 85 per cent of the total as reported by the Survey. It publishes in this report cost information on 4,078,087 tons of commercial production, which is 74 per cent of the output reported by the Survey after the exclusion of mine fuel.

2. Classification of producers by number of mines operated.

The costs of the 44 operators shown in the tabulation for Missouri cover the output of 67 mines. The following table shows the number of mines operated by the different producers:

TABLE 39.—*Number of mines operated by different producers in Missouri.*

Number of mines run by each operator.	Number of operators.	Proportion of total number.	Production tonnage 1918.	Proportion of total production.
District No. 1:		*Per cent.*	*Tons.*	*Per cent.*
1 mine	19	79.1	1,429,364	70.3
2 mines	4	16.7	305,865	15.0
3 mines	1	4.2	298,632	14.7
Total (number of mines, 30)	24	100.0	2,033,861	100.0
District No. 2:				
1 mine	14	70.0	597,515	29.2
2 mines	1	5.0	21,548	1.0
3 mines	2	10.0	269,705	13.2
4 mines	1	5.0	559,258	27.4
5 mines	1	5.0	434,812	21.3
6 mines	1	5.0	161,388	7.9
Total (number of mines, 37)	20	100.0	2,044,226	100.0
State:				
1 mine	33	75.0	2,026,879	49.7
2 mines	5	11.3	327,413	8.0
3 mines	3	6.8	568,337	13.9
4 mines	1	2.3	559,258	13.7
5 mines	1	2.3	434,812	10.7
6 mines	1	2.3	161,388	4.0
Total (number of mines, 67)	44	100.0	4,078,087	100.0

It will be seen that in the State 33 producers (75 per cent of the total number shown in the table) operated only one mine each and produced about 50 per cent of the output. The following statement shows the average number of mines operated by a producer, and the average production per mine operated by one-mine operators and by operators of two or more mines, for each district and for the State of Missouri:

	Average number of mines operated by a producer.	Average production per mine operated by—		
		One-mine operators.	Operators of 2 or more mines.	All operators combined.
	Mines.	*Tons.*	*Tons.*	*Tons.*
No. 1	1.3	75,230	54,954	67,795
No. 2	1.8	42,680	62,900	55,249
State	1.5	61,421	60,330	60,867

The number and size of mines in Missouri is shown in further detail in the report for 1917 of the United States Geological Survey, from which the following statistics are derived:[14]

[14] Mineral Resources of the United States, 1917. Part II, pp. 947–948.

Annual output of mines.	Mines.		Tonnage.	
	Number.	Proportion of total in State.	Average production per mine.	Proportion of total State output.
		Per cent.	*Tons.*	*Per cent.*
200,000 tons and over	6	1.2	248,378	26.3
100,000 to 199,999 tons	5	.9	126,299	11.1
50,000 to 99,999 tons	25	4.9	72,686	32.0
10,000 to 49,999 tons	50	9.9	25,297	22.3
Under 10,000 tons	422	83.1	1,106	8.3
State	508	100.0	11,163	100.0

3. Classification of producers by size of output.

The 44 producers tabulated are classified by size of their output in 1918, exclusive of power-house fuel, as follows:

TABLE 40.—*Classification of 44 Missouri operators by size of output.*

Production during 1918.	Number of operators.	Proportion of total number.	Tonnage produced 1918.	Proportion of total production.
District No. 1:		*Per cent.*	*Tons.*	*Per cent.*
Under 50,000 tons	10	41.6	332,156	16.3
50,000 to 99,999 tons	7	27.2	503,855	24.8
100,000 to 499,999 tons	7	29.2	1,197,850	58.9
Total	24	100.0	2,033,861	100.0
District No. 2:				
Under 50,000 tons	11	55.0	316,229	15.5
50,000 to 99,999 tons	4	20.0	288,238	14.1
100,000 to 499,999 tons	4	20.0	880,501	43.1
500,000 to 999,999 tons	1	5.0	559,258	27.3
Total	20	100.0	2,044,226	100.0
State:				
Under 50,000 tons	21	47.7	648,385	15.9
50,000 to 99,999 tons	11	25.0	792,093	19.4
100,000 to 499,999 tons	11	25.0	2,078,351	51.0
500,000 to 999,999 tons	1	2.3	559,258	13.7
Total	44	100.0	4,078,087	100.0

If the 19 operators from whom cost reports were received for less than the full 12 months during 1918, and the one operator from whom reports were obtained but in unusable form, be considered, it will be found that one operator had an estimated annual production of 339,600 tons and three other operators had an average estimated annual production of 73,400 tons. The remaining 16 operators had an average annual production of 23,093 tons. Had reports for the full 12 months' period been available from them, it would be found that about 58 per cent of the operators produced about 21 per cent of the output.

4. The 1918 costs and sales realizations shown by districts.

There was no change in the official wage scale for bituminous coal miners in Missouri during 1918. Therefore the labor costs per ton for the period were principally affected by changes in the production tonnage and not by changes in the rate of wages paid labor. The effect of decreased production in increasing labor costs can be clearly seen on Diagrams IV and V (opposite p. 100) and Charts 9 and 10 (opposite p. 102).

Tables 19 to 28 in the appendix to this report (see pp. 373–382) show the costs and the sales realizations arranged from low to high in 10-cent groupings for each period shown. Throughout the tables for a given district the costs are shown for the same operators, but the costs of any given operator do not necessarily hold the same relative position in the 10-cent groups for each period. The shift of any operator in his relative position, from period to period, is generally slight.

The tables show, for each quarter and for the year as a whole, by 10-cent groupings, the tonnage produced at that cost, its per cent of the total production, the place of the group in the accumulated percentage, and the number of operators whose costs fell within each 10-cent group.

A summary of the significant facts brought out in Appendix Tables 19 to 28 appears in the following tables, in which are compared the true average cost and sales realization, the range of 90 per cent of the output which had the lowest costs and sales realizations, and the extreme range for the entire output of the 44 operators.

TABLE 41.—*1918 quarterly and yearly revised costs and sales realization for 24 operators in District No. 1 of the State of Missouri, showing averages and range for 90 per cent and for 100 per cent of total output.*

Period.	Costs per net ton.												Sales realization per net ton.		
	Labor.			Supplies.			General expense.			Total f. o. b. mine.					
	Average.	Range. 90 per cent output.	Range. 100 per cent output.	Average.	Range. 90 per cent output.	Range. 100 per cent output.	Average.	Range. 90 per cent output.	Range. 100 per cent output.	Average.	Range. 90 per cent output.	Range. 100 per cent output.	Average.	Range. 90 per cent output.	Range. 100 per cent output.
January-March	$1.75	$0.93-$2.00	$0.93-$2.70	$0.24	$0.08-$0.45	$0.08-$0.77	$0.37	$0.13-$0.60	$0.13-$1.36	$2.36	$1.83-$2.88	$1.83-$3.39	$2.91	$2.54-$3.69	$2.54-$3.77
April-June	1.74	1.11- 2.26	1.11- 2.93	.27	.12- .49	.12- .53	.41	.19- .69	.19- .98	2.42	1.88- 2.82	1.88- 3.54	2.84	2.06- 3.10	2.06- 3.67
July-September	1.77	1.07- 2.42	1.07- 2.97	.32	.07- .62	.07- .92	.39	.20- .56	.20- .89	2.48	1.90- 2.90	1.90- 4.21	2.94	2.23- 3.18	2.23- 3.77
October-December	1.94	1.27- 2.58	1.27- 3.21	.39	.16- .83	.16- 1.39	.49	.22- .80	.22- 1.51	2.82	2.11- 3.81	2.11- 5.40	3.04	2.64- 3.19	2.64- 3.75
Year	1.80	1.20- 2.09	1.20- 2.94	.30	.12- .59	.12- .69	.41	.21- .63	.21- .98	2.51	1.95- 2.76	1.95- 3.66	2.93	2.42- 3.14	2.42- 3.72

TABLE 42.—*1918 quarterly and yearly revised costs and sales realization for 20 operators in District No. 2 of the State of Missouri, showing averages and range for 90 per cent and for 100 per cent of total output.*

Period.	Costs per net ton.												Sales realization per net ton.		
	Labor.			Supplies.			General expense.			Total f. o. b. mine.					
	Average.	Range. 90 per cent output.	Range. 100 per cent output.	Average.	Range. 90 per cent output.	Range. 100 per cent output.	Average.	Range. 90 per cent output.	Range. 100 per cent output.	Average.	Range. 90 per cent output.	Range. 100 per cent output.	Average.	Range. 90 per cent output.	Range. 100 per cent output.
January-March	$2.27	$1.81-$2.88	$1.81-$3.03	$0.21	$0.00-$0.33	$0.00-$0.57	$0.26	$0.12-$0.44	$0.12-$0.59	$2.74	$2.19-$3.44	$2.19-$3.91	$3.08	$2.64-$3.78	$2.64-$3.84
April-June	2.32	1.88- 2.76	1.88- 3.73	.24	.00- .34	.00- .70	.29	.12- .45	.12- .76	2.85	2.34- 3.45	2.34- 4.44	3.14	2.48- 3.65	2.48- 3.97
July-September	2.46	1.99- 2.82	1.99- 3.29	.28	.00- .37	.00- .66	.29	.13- .40	.13- .64	3.03	2.49- 3.52	2.49- 4.06	3.35	2.72- 3.74	2.72- 3.87
October-December	2.52	2.07- 3.07	2.07- 3.33	.27	.08- .47	.08- .60	.33	.12- .46	.12- .73	3.12	2.58- 3.74	2.58- 4.16	3.44	2.78- 3.75	2.78- 3.92
Year	2.39	1.92- 2.89	1.92- 3.07	.25	.02- .39	.02- .57	.29	.13- .42	.13- .67	2.93	2.38- 3.59	2.38- 3.76	3.25	2.64- 3.67	2.64- 3.78

The following table of yearly averages is given for the sake of ready comparison of the two districts:

TABLE 43.—*Average costs and sales realization of two Missouri districts for the year 1918.*

District.	Production.	Costs per ton.				Sales realization per ton.	Margin per ton.
		Labor.	Supplies.	General expense.	Total f. o. b. mine.		
	Tons.						
No. 1	2,033,861	$1.80	$0.30	$0.41	$2.51	$2.93	$0.42
No. 2	2,044,226	2.39	.25	.28	2.92	3.23	.31

The labor cost for district No. 2 was much higher than that for district No. 1. This is due, in a large degree, to the difference in the thickness of seam mined, and to some extent also is attributable to differences in the mining methods followed. As will be noted from the tabulation of thickness of seam (see Table 49, p. 105), 56.1 per cent of the output of district No. 2 came from seams which averaged less than 2 feet thick, while the proportion of output from such seams was but 6.1 per cent in district No. 1.

The following tables, showing the location of the different classes of mines in the respective districts, have been compiled for the calendar year 1918 from the 1918 annual report of the Missouri State Bureau of Mines, Mining and Mine Inspection:

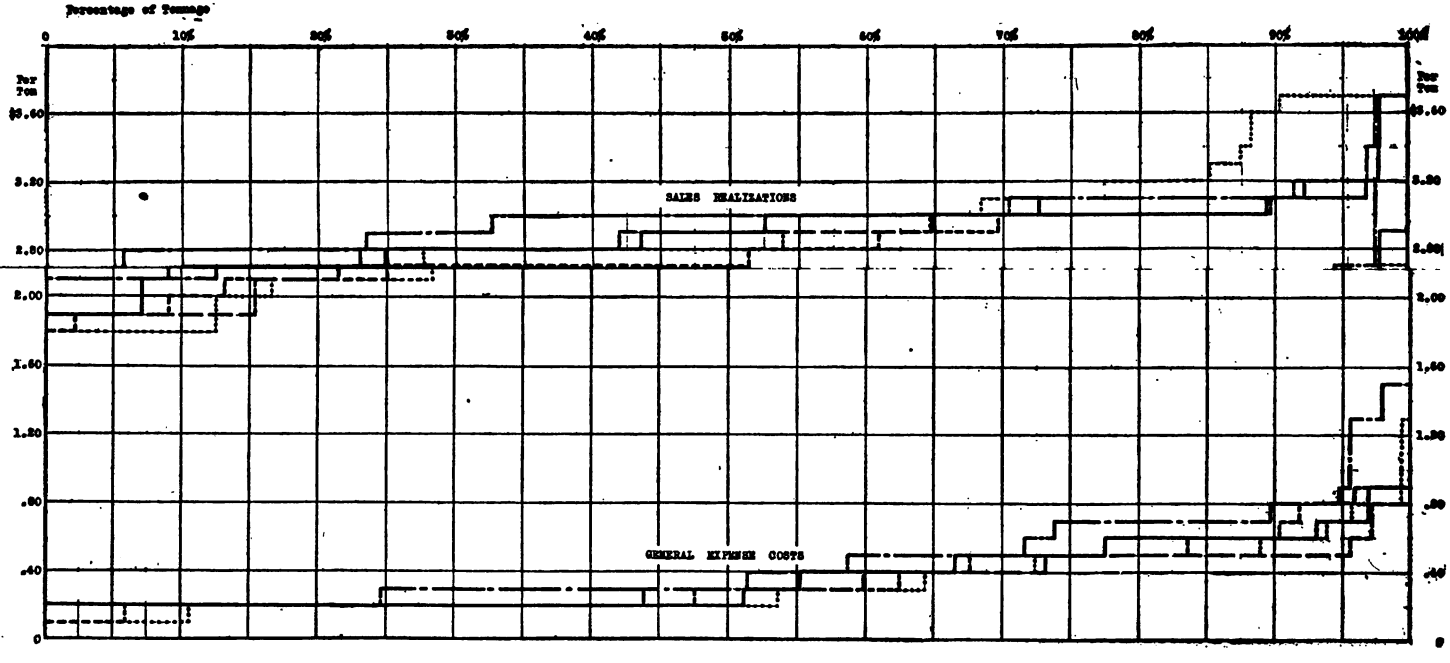
TABLE 44.—*Location of strip pits, long-wall, and room-and-pillar.*

County.	Number of mines operated under each system.			
	Strip pits.	Long-wall.	Room-and-pillar.	Total.
District No. 1:				
Morgan	1			1
Adair		1	9	10
Audrain		4		4
Bates	1		10	11
Barton	12	1	3	16
Calloway	1	4	1	6
Henry	1	3	8	12
Johnson	1		2	3
Macon		6	5	11
Monroe		2	1	3
Randolph		5	19	24
Ralls		4		4
Schuyler			2	2
St. Clair			1	1
Vernon	1		2	3
Total	18	30	63	111
District No. 2:				
Boone			5	5
Chariton			4	4
Clay		1		1
Cooper			1	1
Dade			2	2
Harrison		1	1	2

BITUMINOUS COAL—MISSOURI

District No. 1

DIAGRAM IX



181197°—21. (To face page 100.) No. 1.

TABLE 44.—*Location of strip pits, long-wall, and room-and-pillar*—Continued.

County.	Number of mines operated under each system.			
	Strip pits.	Long-wall.	Room-and-pillar.	Total.
District No. 2—Continued.				
Lafayette	.....	27	3	30
Linn	.....	5	.....	5
Macon	.....	2	6	8
Putnam	.....	1	[1] 6	7
Ray	.....	23	1	24
Total	.....	60	29	89
Grundy-Lightning Creek District: Grundy	.....	1	.....	1
Total State	18	91	92	201

[1] Two operators in Putnam County use both long-wall and room-and-pillar method. They have bee included as room-and-pillar mines.

The following table, compiled from the same source, shows the distribution of the output between the various classes of mines:

TABLE 45.—*Distribution of output from strip pits and long-wall and room-and-pillar mines, from State report for 1918.*

District.	Strip pits.			Long-wall mines.		
	Number of mines.	Output.	Proportion of district.	Number of mines.	Output.	Proportion of district.
		Tons.	*Per cent.*		*Tons.*	*Per cent.*
No. 1	18	724,156	25.8	30	396,618	14.1
No. 2[1]	.....	.....	.....	60	1,569,621	66.2
Grundy-Lightning Creek[2]	.....	.....	.....	1	11,643	100.0
State	18	724,156	14.0	91	1,977,882	38.1

District.	Room-and-pillar mines.			State.	
	Number of mines.	Output.	Proportion of district.	Number of mines.	Output.
		Tons.	*Per cent.*		*Tons.*
No. 1	63	1,686,011	60.1	111	2,806,785
No. 2[1]	29	801,651	33.8	89	2,371,272
Grundy-Lightning Creek[2]	.....	.....	.....	1	11,643
State	92	2,487,662	47.9	201	5,189,700

[1] Two mines in this district which are included in the room-and-pillar column also use the long-wall method to some extent.
[2] Does not include mines at Leavenworth, Kans., classed by the Fuel Administration's order, effective Oct. 1, 1917, as Missouri mines (see p. 91).

From the above table it will be seen that all of the strip pits and about one-third of the long-wall mines and about two-thirds of the room-and-pillar mines were in district No. 1, and about two-thirds of the long-wall mines and one-third of the room-and-pillar mines were in district No. 2.

The following statistics, analyzed in detail on page 105, in connection with the thickness of seams mined, are also given here because of their bearing on the figures shown in Table 43. They cover the 44 operators from whom cost reports were received by the commission for the whole 12 months in 1918:

Character of operation.	Number of operators.	Production, 1918.	Costs per ton.	
			Labor.	Total f. o. b. mine.
		Tons.		
District No. 1:				
Strip pits	17	952,008	$1.55	$2.58
Long-wall mines	2	165,084	2.54	2.95
Room-and-pillar mines	5	916,769	1.91	2.34
District No. 2:				
Long-wall mines	16	1,318,882	2.57	3.13
Room-and-pillar mines	4	725,344	2.04	2.55
State:				
Strip pits	17	952,008	1.55	2.58
Long-wall mines	18	1,483,966	2.57	3.11
Room-and-pillar mines	9	1,642,113	1.97	2.44

The distribution of the output pick-mined only, machine-mined only, and both pick- and machine-mined, has been compiled for the calendar year 1918 from the 1918 Annual Report of the Missouri State Bureau of Mines, Mining and Mine Inspection, and is shown in the following table:

TABLE 46.—*Distribution of output pick-mined only, machine-mined only, and both pick and machine mined, from State reports for 1918.*

Method of mining.	Number of mines.	Output.	Proportion of district.
		Tons.	*Per cent.*
District No. 1:			
Pick-mined only	81	2,052,651	73.1
Machine-mined only	.....	.....	.....
Both pick and machine mined	30	754,134	26.9
District No. 2:			
Pick-mined only	62	924,903	39.0
Machine-mined only	13	920,895	38.8
Both pick and machine mined	14	525,474	22.2
Grundy-Lightning Creek district:			
Pick-mined only	.....	.....	.....
Machine-mined only	.....	.....	.....
Both pick and machine mined	1	11,643	100.0
State:			
Pick-mined only	143	2,977,554	17.7
Machine-mined only	13	920,895	57.4
Both pick and machine mined	45	1,291,251	24.9

5. Relation of the costs to the sales realizations.

The following table shows the distribution, by quarters and for the year 1918, between the items of labor, supplies, general expense, and margin of each dollar of sales realization received by the operator:

BITUMINOUS COAL – MISSOURI

CHART 9.—Production tonnage, by quarters for 1918, of 44 Operators by producing Districts in Missouri

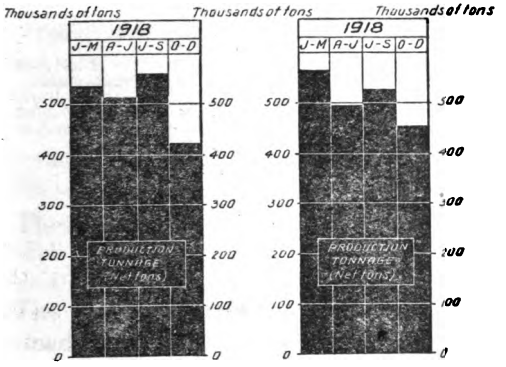


CHART 11.—Distribution of Amount paid by purchaser between the various principal Costs and the Margin, based on each dollar of Sales Realization, by quarters in 1918, in Missouri

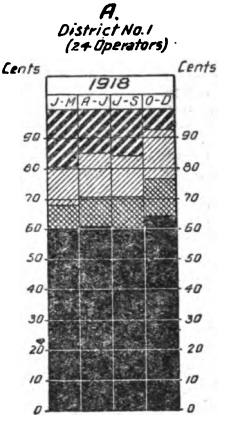
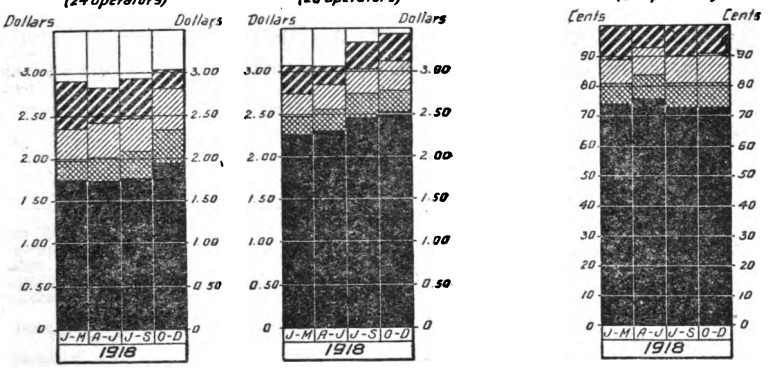


CHART 10.—Average Costs and Realizations per ton, by quarters for 1918, of 44 Operators by producing Districts in Missouri.



Labor ■ Supplies ■ Gen'l Expenses ▨ Margin ▨

TABLE 47.—*Distribution of the amount paid by the purchaser between the various principal costs and the margin, based on each dollar of sales realization, for districts Nos. 1 and 2, of Missouri, 1918, by quarters and for the year.*

Period.	Costs.				Margin.
	Labor.	Supplies.	General expense.	Total f. o. b. mine.	
District No. 1:	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*
January-March	60	8	13	81	19
April-June	61	10	14	85	15
July-September	60	11	13	84	16
October-December	64	13	16	93	7
Year	62	10	14	86	14
District No. 2:					
January-March	74	7	8	89	11
April-June	76	8	9	93	7
July-September	73	8	9	90	10
October-December	73	8	10	91	9
Year	73	8	9	90	10

These facts are shown in graphic form in Chart 11 (facing p. 102).

6. Comparison of claimed and revised costs.

The foregoing tables present costs which have in some cases been revised by the accountants of the commission from the claimed figures reported on the original schedules by the operators. Tables 29 and 30 in the Appendix to this report show the claimed 1918 costs, compiled in all cases directly from the figures submitted by the operators.

The changes brought about through the revision in the average costs for the year 1918 for the 44 operators were as follows:

Item.	Claimed costs.	Revised costs.	Increase (I) or decrease (D) due to revision.
District No. 1:			
Production (tons)	2,107,480	2,033,861	[1] 73,619 (D)
Labor ... per ton	$1.74	$1.80	$0.06 (I)
Supplies ... do	.42	.30	.12 (D)
General expense ... do	.48	.41	.07 (D)
Total, f. o. b. mine ... do	2.64	2.51	.13 (D)
District No. 2:			
Production (tons)	2,110,448	2,044,226	[1] 66,222 (D)
Labor ... per ton	$2.31	$2.39	$0.08 (I)
Supplies ... do	.32	.25	.07 (D)
General expense ... do	.34	.28	.06 (D)
Total, f. o. b. mine ... do	2.97	2.92	.05 (D)
State:			
Production (tons)	4,217,928	4,078,087	[1] 139,841 (D)
Labor ... per ton	$2.03	$2.09	$0.06 (I)
Supplies ... do	.37	.28	.09 (D)
General expense ... do	.40	.35	.05 (D)
Total, f. o. b. mine ... do	2.80	2.72	.08 (D)

[1] Due to exclusion of power-house fuel.

The increase of 6 cents in the average State revised over the claimed labor cost is caused by the use of the revised production tonnage as a divisor. The total claimed labor cost was $8,569,626, and the total revised labor cost was $8,561,902. The downward revision resulted from the exclusion by the commission of charges covering expenditures for development, which had been included in labor cost by several of the operators. Revisions were also made in the items of supplies and general expense, resulting in a decrease of 9 and 5 cents, respectively.

The costs claimed by some of the operators were obviously open to question as to their accuracy. Such operators were required by the commission to furnish detailed information in support of their claimed costs. The examination of such detailed information revealed the fact that they had often included such items as maintenance and contingent reserves, etc. In some cases the costs had been inflated principally through the inclusion of items which should have been treated as additions to capital, officers' salaries, which were far in excess of those paid in neighboring operations of similar size, and by excessive charges for the items of depreciation and depletion, which had not been computed in accordance with the rules prescribed in the instructions of the commission.

Under the head of general expense, the chief instances of revision affected two operators and involved about 1 per cent of the total State tonnage.

7. 1918 costs shown by thickness of seam mined.

About 50 per cent of the output of Missouri came from 11 producers who operated more than one mine. Most of these producers did not report the costs of each mine separately. In order to include them in a tabulation to show costs by thickness of seam, it was necessary to use the average of the seams mined by them. This has led to the inclusion of data in the tabulation for the 44 operators which to a slight extent vitiates its scientific value, since it is not known whether equal tonnage was derived from mines which had seams above or below the average thickness. The tabulation by thickness of seam for the 44 operators follows:

TABLE 48.—*Seam tabulation of revised costs for 44 operators in Missouri.*

Thickness of seam.[1]	Number of operators.	Production, 1918.	Costs per ton.			
			Labor.	Supplies.	General expense.	Total, f. o. b. mine.
District No. 1:		*Tons.*				
12 to 23 inches	2	124,331	$2.01	$0.37	$0.45	$2.83
24 to 35 inches	12	694,214	1.56	.46	.60	2.62
36 to 47 inches	7	847,234	2.01	.20	.30	2.51
48 to 71 inches	3	368,082	1.63	.22	.31	2.16
Total	24	2,033,861	1.80	.30	.41	2.51

[1] Where two or more mines were operated by one producer, the average thickness of seams was used.

TABLE 48.—*Seam tabulation of revised costs for 44 operators in Missouri*—Con.

Thickness of seam.[1]	Number of operators.	Production, 1918.	Costs per ton.			
			Labor.	Supplies.	General expense.	Total f. o. b. mine.
District No. 2:		*Tons.*				
12 to 23 inches	13	1,147,473	$2.57	$0.24	$0.31	$3.12
24 to 35 inches	3	171,409	2.63	.31	.21	3.15
36 to 47 inches	4	725,344	2.04	.25	.26	2.55
Total	20	2,044,226	2.38	.25	.29	2.92
State:						
12 to 23 inches	15	1,271,804	2.51	.26	.33	3.10
24 to 35 inches	15	865,623	1.77	.44	.52	2.73
36 to 47 inches	11	1,572,578	2.03	.22	.28	2.53
48 to 71 inches	3	368,082	1.62	.22	.31	2.16
Total	44	4,078,087	2.09	.28	.35	2.72

[1] Where two or more mines were operated by one producer, the average thickness of seams was used.

In order to eliminate the effect of the inclusion of average thicknesses, where producers operated two or more mines, a seam tabulation has been made of the 33 one-mine operators. It will be noted from the following table that the tonnage of the 33 one-mine operators was somewhat more regularly distributed among the different thicknesses of seam than was the case with the 44 operators:

TABLE 49.—*Distribution, between seams, of output of 44 operators and 33 one-mine operators in Missouri.*

Thickness of seam.	24 operators, producing 2,033,861 tons in 1918.		19 operators, producing 1,429,364 tons in 1918.	
	Number of operators.	Per cent of output.	Number of operators.	Per cent of output.
District No. 1:				
12 to 23 inches	2	6.1	2	8.7
24 to 35 inches	2	34.1	10	35.1
36 to 47 inches	7	41.7	4	30.4
48 to 71 inches	3	18.1	3	25.8
Total	24	100.0	19	100.0
	20 operators, producing 2,044,226 tons in 1918.		14 operators, producing 597,515 tons in 1918.	
District No. 2:				
12 to 23 inches	13	56.1	9	47.2
24 to 35 inches	3	8.4	2	25.1
36 to 47 inches	4	35.5	3	27.7
Total	20	100.0	14	100.0
	44 operators, producing 4,078,087 tons in 1918.		33 operators, producing 2,026,879 tons in 1918.	
State:				
12 to 23 inches	15	31.2	11	20.0
24 to 35 inches	15	21.2	12	32.1
36 to 47 inches	11	38.6	7	29.7
48 to 71 inches	3	9.0	3	18.2
Total	44	100.0	33	100.0

The tabulation of cost, by thickness of seam, for the 33 one-mine operators follows:

TABLE 50.—*Seam tabulation of revised costs for 33 one-mine operators in Missouri.*

Thickness of seam.	Number of operators.	Production, 1918.	Costs per ton.			
			Labor.	Supplies.	General expense.	Total f. o. b. mine.
District No. 1:		*Tons.*				
12 to 23 inches	2	124,331	$2.01	$0.37	$0.45	$2.83
24 to 35 inches	10	501,967	1.46	.48	.59	2.53
36 to 47 inches	4	434,984	2.12	.21	.24	2.57
48 to 71 inches	3	368,082	1.63	.22	.31	2.16
Total	19	1,429,364	1.75	.32	.40	2.47
District No. 2:						
12 to 23 inches	9	281,568	2.63	.34	.30	3.27
24 to 35 inches	2	149,861	2.60	.34	.20	3.14
36 to 47 inches	3	166,086	2.44	.32	.39	3.15
Total	14	597,515	2.57	.34	.30	3.21
State:						
12 to 23 inches	11	405,899	2.44	.35	.35	3.14
24 to 35 inches	12	651,828	1.72	.45	.50	2.67
36 to 47 inches	7	601,070	2.21	.24	.28	2.73
48 to 71 inches	3	368,082	1.63	.22	.31	2.16
Total	33	2,026,879	1.99	.33	.37	2.69

A summary of the principal facts relating to labor, supplies, and total f. o. b. mine cost of the 33 one-mine operators, arranged in comparative form for the districts and the State, is shown below:

Thickness of seam.	District No. 1.			District No. 2.			State.		
	Labor.	Supplies.	Total f. o. b. mine cost.	Labor.	Supplies.	Total f. o. b. mine cost.	Labor.	Supplies.	Total f. o. b. mine cost.
12 to 23 inches	$2.01	$0.37	$2.83	$2.63	$0.34	$3.27	$2.44	$0.35	$3.14
24 to 35 inches	1.46	.48	2.53	2.60	.34	3.14	1.72	.45	2.67
36 to 47 inches	2.12	.21	2.57	2.44	.32	3.15	2.21	.24	2.73
48 to 71 inches	1.63	.22	2.16	.....	.....	.....	1.63	.22	2.16
Total	1.75	.32	2.47	2.57	.34	3.21	2.00	.33	2.70

As pointed out on page 107, the mines of 17 operators were strip pits, of 18 operators were the long-wall type, while 9 operators had room-and-pillar mines. The following table gives a comparison of the costs of each class of mine, shown by thickness of seam operated:

TABLE 51.—*Comparison of 1918 costs of strip pits, long-wall, and room-and-pillar mines in Missouri by thickness of seams.*

Thickness of seam.	Strip pits.				Long-wall mines.				Room-and-pillar.			
	Number of operators.	Production.	Costs per ton. Labor.	Costs per ton. Total f.o.b. mine.	Number of operators.	Production.	Costs per ton. Labor.	Costs per ton. Total f.o.b. mine.	Number of operators.	Production.	Costs per ton. Labor.	Costs per ton. Total f.o.b. mine.
District No. 1:		*Tons.*				*Tons.*				*Tons.*		
12 to 23 inches	1	80,099	$1.49	$2.47	....	.....	.....	.....	....	.....	.....	.....
24 to 35 inches	12	694,214	1.56	2.62	....	.....	.....	.....	....	.....	.....	.....
36 to 47 inches	[1] 4	177,695	1.53	2.48	....	.....	.....	.....	3	591,832	$2.05	$2.48
48 to 59 inches	....	.....	.....	.....	....	.....	.....	.....	2	324,937	1.65	2.10
Total	17	952,008	1.55	2.58	2	165,084	[2] $2.54	[2] $2.95	5	916,769	1.91	2.34
District No. 2:												
12 to 23 inches	....	.....	.....	.....	13	1,147,473	2.57	3.12	....	.....	.....	.....
24 to 35 inches	....	.....	.....	.....	3	171,409	2.63	3.15	....	.....	.....	.....
36 to 47 inches	....	.....	.....	.....	....	.....	.....	.....	4	725,344	2.04	2.55
Total	....	.....	.....	.....	16	1,318,882	2.57	3.13	4	725,344	2.04	2.55
State:												
12 to 23 inches	1	80,099	1.49	2.47	14	1,191,705	2.58	3.14	....	.....	.....	.....
24 to 35 inches	12	694,214	1.56	2.62	3	171,409	2.62	3.15	....	.....	.....	.....
36 to 47 inches	[1] 4	177,695	1.53	2.48	1	120,852	2.39	2.76	7	1,317,176	2.04	2.52
48 to 59 inches	....	.....	.....	.....	....	.....	.....	.....	2	324,937	1.65	2.10
Total	17	952,008	1.55	2.58	18	1,483,966	2.57	3.11	9	1,642,113	1.97	2.44

[1] Includes one operator who mined a 51-inch seam.
[2] To avoid disclosing identity, these costs are not shown separately. They are included in the State summary.

The above figures indicate that the labor cost for mines operating in the same general thickness of seam are lowest for strip pits and highest for long-wall mines, with room-and-pillar labor costs about halfway between. As was pointed out in the discussion of a similar comparison of long-wall and room-and-pillar mines in Iowa (see p. 56) most of the long-wall operations are confined to the thinnest seams. The decrease in labor cost with increase in thickness of seam in the case of the strip pits is not as marked as in Kansas (see p. 85), nor are the labor costs of the strip pits so much lower than room-and-pillar mines operating in the same general thickness of seam, as was the case in Kansas.

General expense is less affected than labor cost by conditions of a physical nature, like thickness of seam, but is closely connected with the commercial and financial economies of operation. The following comparison of the costs of the 33 one-mine operators with those of the 11 operators of two or more mines is of interest.

TABLE 52.—*Comparison of average revised costs: Operators of one mine with operators of two or more mines in Missouri.*

District.	Number of operators.	Number of mines.	Output, 1918.			Costs per ton.			
			Total output.	Output per operator.	Output per mine.	Labor.	Supplies.	General expense.	Total f. o. b. mine.
			Tons.	*Tons.*	*Tons.*				
No. 1:									
1 mine	19	19	1,429,364	75,230	75,230	$1.75	$0.32	$0.40	$2.47
2 or more mines	5	11	604,497	120,899	54,954	1.90	.25	.44	2.59
Total	24	30	2,033,861	84,744	67,795	1.80	.30	.41	2.51
No. 2:									
1 mine	14	14	597,515	42,680	42,680	2.57	.34	.30	3.21
2 or more mines	6	23	1,446,711	241,119	62,900	2.31	.22	.28	2.81
Total	20	37	2,044,226	102,211	55,249	2.39	.25	.28	2.92
State:									
1 mine	33	33	2,026,879	61,421	61,421	1.99	.33	.37	2.69
2 or more mines	11	34	2,051,208	170,934	60,330	2.18	.23	.33	2.74
Total	44	67	4,078,087	92,684	60,867	2.09	.28	.35	2.72

In district No. 1 the general expense cost of operators of two or more mines was higher than that of the one-mine operators. In district No. 2, and for the State as a whole, the general expense costs were lower for the operators of two or more mines than those for the one-mine operators.

Part III. Comparative costs and sales realizations, August, 1917–December, 1918.

1. Representativeness of statistics presented.

Representative figures were not obtained by the commission for costs and sales realizations prior to August, 1917, in the various Missouri districts. Use has, therefore, been made of the monthly reports covering the last five months of 1917. Nearly every one of the operators that appears in the 1917 appears also in the 1918 figures, but there are a few unimportant exceptions which do not affect the general comparability of the 1917 figures with those of 1918. The average total f. o. b. mine costs, sales realizations, and margins of about 75 per cent of the entire output mined in the districts are presented for these districts.

2. The revised costs, sales realizations, and production figures, and analyses of the fluctuations, by districts, August, 1917–December, 1918.

DISTRICT NO. 1.

The significance of the six periods selected for presenting the figures for August, 1917–December, 1918, for district No. 1 is as follows:

August, 1917.—The greater part of this month was prior to the fixing, by Executive order of August 21, 1917, of maximum prices for bituminous coal not sold under contracts made prior to that date, and the establishment of a fuel administration to regulate the fuel situation.

September–October, 1917.—This period directly followed the fixing, by Executive order of August 21, 1917, of maximum prices for bituminous coal not sold under contracts made prior to that date and the establishment of a fuel administration to regulate the fuel situation. The 1917 wage scale continued in operation during these two months.

November–December, 1917.—This period directly followed the increase in maximum prices allowed by Executive order in consequence of the adoption of a new wage scale (1917–18) which was higher than that adopted earlier in 1917.

January–March, 1918.—During this period the prices fixed November 1, 1917, continued. The number of operators in the district from whom 1918 figures were obtained was less than that from whom August–December, 1917, figures were available.

April–May, 1918.—Beginning with this period, practically the entire output of coal, whether sold under contract or not, was subject to the governmental maximum prices. The 1917–18 wage scale continued in operation.

June–December, 1918.—This period followed the reduction made by the Fuel Administration of 10 cents per ton, effective May 25, 1918, in the maximum prices for the district. Throughout this period the official maximum prices remained unchanged, and the 1917–18 wage scale continued in effect.

TABLE 53.—*Revised costs and sales realizations of operators in District No. 1 of Missouri, August, 1917–December, 1918.*

Period.	Number of operators.	Production.	Total f. o. b. mine cost per ton.	Sales realization per ton.	Margin per ton.
		Tons.			
August, 1917	27	160,675	$1.92	$2.43	$0.51
September–October, 1917	27	374,434	1.96	2.51	.55
November–December, 1917	27	426,767	2.21	2.97	.76
January–March, 1918	24	536,450	2.36	2.91	.55
April–May, 1918	24	335,145	2.43	2.84	.41
June–December, 1918	24	1,162,266	2.59	2.96	.37

On August 21, 1917, the Government first fixed prices under the Lever Act. The prices fixed by Executive order for the sale of coal not then under contract in this district on August 21, 1917, were as follows: Run of mine, $2.70; prepared sizes, $2.95; slack, $2.45. The average proportions which these three classes of coal formed

of the total output, based on actual returns for all operators in this district who reported to the Federal Trade Commission during the period August–December, 1917, were as follows: Run of mine, 14 per cent; prepared sizes, 66 per cent; slack, 20 per cent. Had the entire output of the 27 operators been sold at the prices established August 21, 1917, it would have brought them a sales realization of $2.83 per ton. The 27 operators actually received, during September–October, 1917, a sales realization of $2.51 per ton, which was 8 cents more than they received during August ($2.43 per ton). The average total f. o. b. mine cost of the 27 operators was, for September–October, 1917, $1.96 per ton—an increase of 4 cents from that in August. Their average monthly tonnage was 187,217 tons—an increase over that in August (160,675 tons). Their margin during September–October was 55 cents per ton—an increase of 4 cents over August.

Effective November 1, 1917, a 45-cent increase in the established maximum prices was allowed by Executive order, to take care of an increase in the wage scale which went into effect at that time. The average f. o. b. mine cost of the 27 operators for November–December, 1917 ($2.21 per ton), increased 25 cents over that for September–October, 1917, this increase being attributable to the higher wage scale. The production increased to an average of 213,383 tons per month. The average sales realization for November–December, 1917, was $2.97 per ton—an increase of 46 cents. The margin was 76 cents per ton—an increase of 21 cents.

During January–March, 1918, the average total f. o. b. mine cost of the 24 operators who reported for the 12 months in 1918 was $2.36 per ton, their sales realization $2.91, and their margin 55 cents per ton. The prices named for this district in the Fuel Administration's order effective April 20, 1918, were the same as those established by Executive order of August 21, 1917, as modified by the 45-cent price increase granted November 1, 1917, because of the wage increase. The total f. o. b. mine cost of the 24 operators during April–May, 1918, was $2.43 per ton—an increase of 7 cents over January–March. The production in April–May showed a decrease, averaging 167,573 tons per month, as compared with an average of 178,817 tons per month during January–March. Their sales realization was $2.84 (a decrease of 7 cents), and the margin 41 cents per ton (a decrease of 14 cents).

Effective May 25, 1918, the Fuel Administration made a reduction of 10 cents per ton in the existing maximum prices for this district. During the period June–December, 1918, there was no change in the official maximum prices for this district. The 24 operators had an average f. o. b. mine cost of $2.59 per ton—an increase of 16 cents per ton over April–May. The production during the last 7

months averaged 166,038 tons per month. Their average sales realization for June–December, 1918, was $2.96 per ton (an increase of 12 cents over April-May), and their margin 37 cents per ton (a decrease of 4 cents).

DISTRICT NO. 2.

The significance of the eight periods selected for presenting the figures for August, 1917–December, 1918, for district No. 2 is as follows:

August, 1917.—This period has been described under district No. 1 (see p. 109).

September, 1917.—This period directly followed the fixing, by Executive order of August 21, 1917, of maximum prices for bituminous coal not sold under contracts made prior to that date, and the establishment of a fuel administration to regulate the fuel situation. The 1917 wage scale continued in operation during this month.

October, 1917.—This period followed the 45-cent per ton increase effective October 1, 1918, made by the Fuel Administration in the established maximum prices for the output in five specified counties which formed part of the district. Effective October 27, 1918, these prices were extended to cover part of the remainder of the district.

November–December, 1917, and January–March, 1918.—These two periods have been described under district No. 1 (see p. 109).

April, 1918.—Effective April 20, 1918, a change was made by the Fuel Administration in the maximum prices established for this district.

May, 1918.—This period followed the change in maximum prices effective April 20, 1918.

June–December, 1918.—This period has been described under district No. 1 (see p. 109).

TABLE 54.—*Revised costs and sales realizations of operators in District No. 2 of Missouri, August, 1917–December, 1918.*

Period.	Number of operators.	Production.	Total f. o. b. mine cost per ton.	Sales realization per ton.	Margin per ton.
		Tons.			
August, 1917	19	159,165	$2.14	$2.36	$0.22
September, 1917	19	152,719	2.18	2.38	.20
October, 1917	19	197,507	2.21	2.62	.41
November–December, 1917	19	388,732	2.67	3.04	.37
January–March, 1918	20	568,389	2.74	3.08	.34
April, 1918	20	150,002	2.83	2.93	.10
May, 1918	20	169,705	2.84	3.08	.24
June–December, 1918	20	1,156,130	3.04	3.36	.32

On August 21, 1917, the Government first fixed prices under the Lever Act. The prices fixed by Executive order for the sale of coal

not then under contract in this district on August 21, 1917, were as follows: Run of mine, $2.70; prepared sizes, $2.95; slack, $2.45. The average proportions which these three classes of coal formed of the total output, based on actual returns for all operators in this district who reported to the Federal Trade Commission during the period August–December, 1917, were as follows: Run of mine, 15 per cent; prepared sizes, 74 per cent; slack, 11 per cent. Had the entire output of the 19 operators been sold at the prices established August 21, 1917, it would have brought them a sales realization of $2.86 per ton. The 19 operators *actually* received, during September, 1917, a sales realization of $2.38 per ton, which was 2 cents more than they received during August ($2.36 per ton). The average total f. o. b. mine cost of the 19 operators was, for September, 1917, $2.18 per ton (an increase of 4 cents over that in August), while their average monthly tonnage was 152,719 tons (a decrease from that in August—159,165 tons). Their margin during September was 20 cents per ton—a decrease of 2 cents from August.

Effective October 1, 1917, the Fuel Administration made an increase of 45 cents per ton in the existing maximum prices for the entire output of LaFayette, Ray, Clay, Platte, and Linn Counties. Of the 19 operators shown in Table 54, for August–December, 1917, 16, who produced about 65 per cent of the tonnage shown for that period, were in the counties affected by the price increase. Effective October 27, 1917, the Fuel Administration made a similar increase of 45 cents per ton for the entire output of Putnam County, and the output of the long-wall thin seam mines in Randolph County. Of the 19 operators shown in Table 54, for August–December, 1917, one operator, who produced about 1 per cent of the tonnage shown for that period, was in the region affected by the price increase.

The total f. o. b. mine cost during October of the 19 operators in the district (including the 16 in the above-named counties) was $2.21 per ton—an increase of 3 cents over that of September. The production in October showed an increase, being 197,507 tons. The sales realization was $2.62 (an increase of 24 cents), and the margin 41 cents per ton (an increase of 21 cents). These increases are principally attributable to the increased official prices.

Effective November 1, 1917, a 45-cent increase in the established maximum prices was allowed by Executive order, to take care of an increase in the wage scale which went into effect at that time. The average f. o. b. mine cost of the 19 operators for November–December, 1917 ($2.67 per ton), increased 46 cents over that for October, 1917, a part of this increase being attributable to the higher wage scale, and a part to the decrease in output (to an average of 194,366 tons per month). Their average sales realization for November–

December, 1917, was $3.04 per ton (an increase of 42 cents), and their margin 37 cents per ton (a decrease of 4 cents).

During January–March, 1918, the average total f. o. b. mine cost of the 20 operators who reported for the 12 months in 1918 was $2.74 per ton, their sales realization $3.08, and their margin 34 cents per ton. During April, 1918, the average f. o. b. mine cost of the 20 operators was $2.83 per ton—an increase of 9 cents over that for January–March. The April output was 150,002 tons—a decrease as compared with the average monthly production of 189,463 tons for January–March. The sales realization was $2.93 per ton—a decrease of 15 cents from that for January–March ($3.08 per ton). The margin was 10 cents per ton—a decrease of 24 cents. Effective April 20, 1918, the Fuel Administration made a change in the existing maximum prices for the district. The new prices including the November 1, 1917, price increase because of the wage increase, were as follows: Run of mine, $3.60; prepared sizes, $3.85; slack, $2.90. Applying to these prices the proportions (already stated) which these three classes of coal form of the total output, a sales realization of $3.71 per ton was possible, had the entire output been sold at the maximum prices. The total f. o. b. mine cost of the 20 operators during May was $2.84 per ton (an increase of 1 cent over that of April), the sales realization was $3.08, and the margin 24 cents per ton. The production in May showed an increase, being 169,705 tons. Effective May 25, 1918, the Fuel Administration made a reduction of 10 cents per ton in the official maximum prices for the district. During the period June–December, 1918, there was no change in the official maximum prices for this district. The 20 operators had an average f. o. b. mine cost of $3.04 per ton—an increase of 20 cents over May. Their production during the last seven months was lower than that of May, averaging 165,161 tons per month. Their average sales realization for June–December, 1918, was $3.36 per ton (an increase of 28 cents over May), and their margin 32 cents per ton (an increase of 8 cents).

CHAPTER V.—ARKANSAS.

Part I. Introduction.

1. Definition of the various producing districts or fields.

The distribution of output between the various coal-producing districts in Arkansas has been made in accordance with the areas included in those districts as defined by the Fuel Administration in its orders effective March 29, 1918, for the bituminous coal output, and July 10, 1918, for the anthracite coal output. The output comprised in the different districts is as follows:

Sebastian district includes Johnson (except anthracite coal from the Spadra mines), Franklin, and Sebastian Counties, except the Excelsior district.

Excelsior-Logan district includes Logan and Scott Counties and the Excelsior district of Sebastian County—namely mines on the Midland Valley Railroad (*a*) north of Montreal Junction and (*b*) east of Hackett and west of, but not at, Greenwood.

Anthracite district includes anthracite coal mined in the Bernice mines in Pope County and the Spadra mines in Johnson County.

Since the Fuel Administration gave no specific titles to these districts, the foregoing descriptive titles are used in this report.

The location of these districts is shown on the map of Arkansas (facing p. 116).

2. General statistics of output.

The statistics in this section for coal produced in Arkansas have been compiled from reports published by the United States Geological Survey.

The proportion which the output of Arkansas has formed of the total bituminous coal output of the United States is as follows:

	Per cent.		Per cent.
1911	0.5	1915	0.4
1912	.5	1916	.4
1913	.5	1917	.4
1914	.4	1918	.4

Since the Geological Survey statistics are shown by counties and the State as a whole, the tonnage of counties which lie in more than one of the producing districts, as described above, has been allocated to the different districts in the proportions of those counties as shown in operators' reports to the commission for 1918.

The following statement shows the proportions which the output of the various districts formed of the State total:

Year.	Production.	Proportion of total produced in each district.		
		Johnson, Franklin, and Sebastian County district.[1]	Logan and Scott Counties and the Excelsior district.[2]	Anthracite district.[3]
	Tons.	*Per cent.*	*Per cent.*	*Per cent.*
1911	2,106,789	90	2	8
1912	2,100,819	87	2	11
1913	2,234,107	88	1	11
1914	1,836,540	86	2	12
1915	1,652,106	83	3	14
1916	1,994,915	82	4	14
1917	2,143,579	80	5	15

[1] Except Excelsior district in Sebastian County.
[2] Excelsior district of Sebastian County.
[3] Bernice and Spadra mines.

The United States Geological Survey has collected information on the "average value per ton" for a long series of years. This average is obtained by dividing the total selling value by the total tonnage.[15] The following table shows this information for 1911–1917:

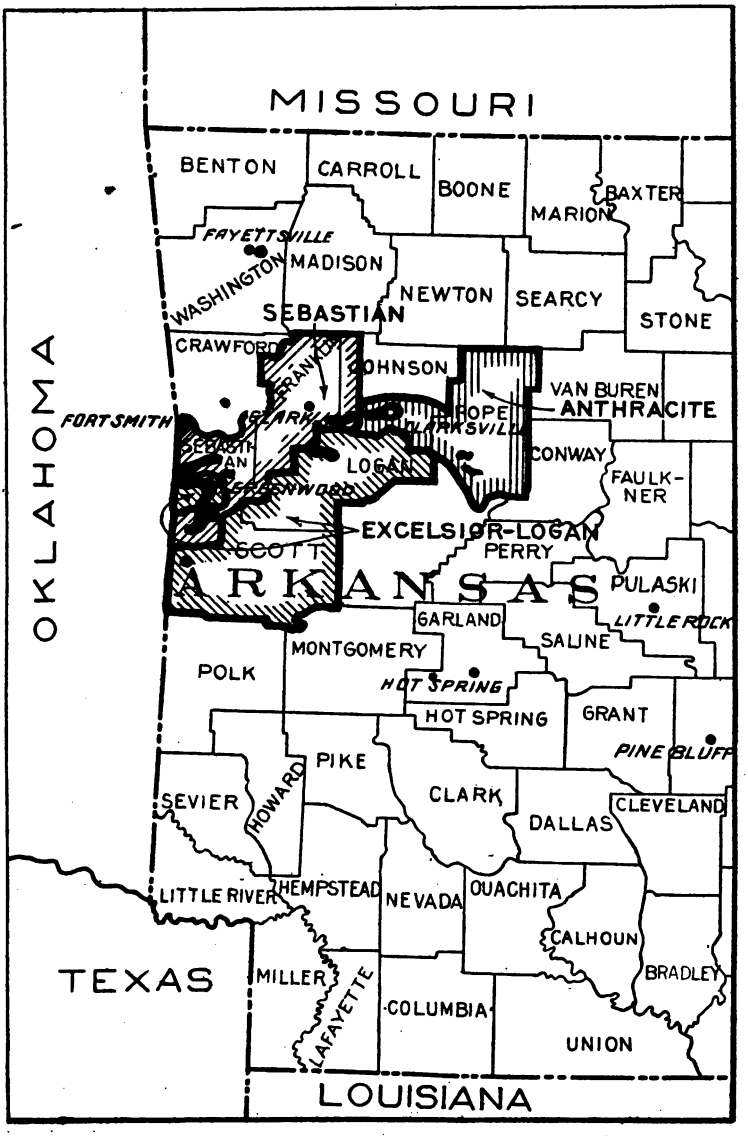
TABLE 55.—*Production and average value, 1911–1917, by producing districts and State of Arkansas.*

Year.	Johnson, Franklin, and Sebastian County district.[a]		Logan and Scott Counties and the Excelsior district.[b]		Anthracite district.[c]		State.	
	Production.	Average value per ton.	Production.	Average value per ton.	Production.	Average value per ton.	Production.	Average value per ton.
	Tons.		*Tons.*		*Tons.*		*Tons.*	
1911	1,890,704	$1.53	37,080	$1.92	179,005	$2.46	2,106,789	$1.61
1912	1,827,756	1.62	37,866	2.03	235,197	2.35	2,100,819	1.71
1913	1,967,119	1.67	30,150	1.88	236,838	2.45	2,234,107	1.76
1914	1,585,991	1.67	34,839	1.77	215,710	2.05	1,836,540	1.72
1915	1,360,369	1.65	56,650	1.91	235,087	2.52	1,652,106	1.79
1916	1,629,937	1.77	77,796	2.38	287,182	2.66	1,994,915	1.92
1917	1,709,978	2.36	100,173	3.13	333,428	3.43	2,143,579	2.56

[a] Except Excelsior district in Sebastian County.
[b] Excelsior district of Sebastian County.
[c] Bernice and Spadra mines.

[15] "The value of coal given in this report is the realization value at the mine f. o. b. cars, and the average value per ton is the average realization price obtained by dividing the total value by the number of tons sold or produced. The coal used at the mine, the coal coked by the producing company, and the coal used in some other industry by the company operating the mine—an appreciable proportion of the whole—is never sold, and the value placed upon it is either an estimate or the figure at which it is carried on the books, either of which is supposedly based on what the coal would have brought if sold or what other fuel for the respective purpose would have cost if its purchase had been necessary. In other words, the values given represent returns to the operators for coal sold, plus estimated exchange value of that not sold. These figures do not necessarily show prices or even an average of the prices of coal at the mine." U. S. Geological Survey. (Mineral Resources of the United States, 1917. Part II, p. 952.)

ARKANSAS
ANTHRACITE AND BITUMINOUS COAL FIELDS AND PRODUCING DISTRICTS



In its reports for 1916 and 1917 the Geological Survey published "average values" in more detail than in previous reports. The following table is compiled from statistics appearing in the 1916 and 1917 reports:

TABLE 56.—*Disposition of production and average values, by producing districts and State of Arkansas, 1916–17.*

District.	Loaded at mines for shipment.				Sold to local trade and used by employees.			
	1916		1917		1916		1917	
	Production.	Average value per ton.	Production.	Average value per ton.	Production.	Average value per ton.	Production.	Average value per ton.
	Tons.		*Tons.*		*Tons.*		*Tons.*	
Johnson, Franklin, and Sebastian Counties[1]	1,548,227	$1.78	1,619,572	$2.36	24,303	$2.25	31,051	$2.70
Logan and Scott Counties and the Excelsior district[2]	68,197	2.44	81,670	3.24	7,298	2.17	15,336	2.70
Anthracite[3]	264,681	2.70	308,166	3.43	12,653	2.53	12,717	4.36
State	1,881,105	1.93	2,009,408	2.56	44,254	2.32	59,104	3.06

District	Used at mines for steam and heat.				State.			
	1916		1917		1916		1917	
	Production.	Average value per ton.	Production.	Average value per ton.	Production.	Average value per ton.	Production.	Average value per ton.
	Tons.		*Tons.*		*Tons.*		*Tons.*	
Johnson, Franklin, and Sebastian Counties[1]	57,407	$1.31	59,355	$2.09	1,629,937	$1.77	1,709,978	$2.36
Logan abd Scott Counties and the Excelsior district[2]	2,301	1.29	3,167	2.45	77,796	2.38	100,173	3.13
Anthracite[3]	9,848	1.82	12,545	2.48	287,182	2.66	333,428	3.43
State	69,556	1.38	75,067	2.17	1,994,915	1.92	2,143,579	2.56

[1] Except Excelsior district in Sebastian County.
[2] Excelsior district of Sebastian County.
[3] Bernice and Spadra mines.

3. *Character of the consumption of Arkansas coal.*

As is the case in many of the coal fields west of the Middle Atlantic States, a considerable portion of the output of bituminous coal in Arkansas goes into domestic consumption. The proportion thus used varied from district to district, and is influenced partly by the nature of the coal, partly by the availability of substitutes, and partly by the extent of preparation given the coal for the purpose of adapting it to domestic use.

The exact extent to which the coal from this State enters into domestic use is not definitely ascertainable from any figures at present available. In the 1915 report of the United States Geological

Survey[1] some statistics of the distribution of bituminous and anthracite coal by classes of consumers for Arkansas are shown. From these the percentages of consumption shown in the following statement have been compiled:

	Per cent.
Railroad	48.6
Domestic and small steam trade	37.7
Industrial steam trade	6.6
Mine fuels	3.8
Special	3.3
Total output (tons)	1,652,106

The following statistics of distribution of shipments of bituminous and anthracite coal, by classes of consignees, October 5, 1918, to February 1, 1919, are taken from an unpublished manuscript of the Geological Survey and are published by permission of that bureau:

	Per cent.
Railroad fuel	34.8
United States Government	3.2
State and county institutions	.7
Public utilities, gas and electric	8.6
Retail dealers	12.7
Industries, including iron and steel	40.0
	100.0

This use of coal for domestic consumption introduces, to a greater or less extent, changes in the character of the seasonal demand. In Report No. 2, on Pennsylvania anthracite, the commission pointed out the wide differences between the character of the demand for coal for domestic consumption and the demand for industrial use. If the coal is of a nature which can be stored without undue fire risk, and if the domestic consumer can be induced to buy his coal during the summer, the domestic demand has a less seasonal character than where such conditions do not exist. Despite the marked seasonal fluctuations, the annual domestic demand is likely to be a fairly constant quantity from year to year. On the other hand, the industrial demand for coal, while not always subject to such extreme seasonal fluctuations as that of coal for domestic use, is likely to vary to a much greater extent from year to year, influenced as it is primarily by periods of industrial prosperity or depression.

[1] Mineral Resources of the United States, 1915. Part II, pp. 471–472.

Part II. 1918 costs and sales realizations.

1. Number and extent of operations covered.

The 1918 production of the 36 operators in Arkansas from whom cost reports were obtained by the commission, was as follows:

	Tons.	Per cent.
Sebastian district:		
16 operators from whom costs were obtained for 12 months	1,471,330	82.2
1 operator from whom costs were obtained for 12 months, but which were excluded for certain reasons	40,570	2.3
6 operators from whom costs were obtained for less than the full 12 months (actual tonnage reported 95,427 tons) estimated yearly tonnage	276,720	15.5
Total	1,788,620	100.0
Excelsior-Logan district: 5 operators from whom costs were obtained for 12 months.	70,731	100.0
Anthracite district:		
4 operators from whom costs were obtained for 12 months	103,985	43.[illegible]
4 operators from whom costs were obtained for less than the full 12 months (actual tonnage reported 97,260 tons) estimated yearly tonnage	137,136	56.9
Total	241,121	100.0
State:		
25 operators from whom costs were obtained for 12 months	1,646,046	78.4
1 operator from whom costs were obtained for 12 months, but which were excluded for certain reasons	40,570	1.9
10 operators rom whom costs were obtained for less than the full 12 months (actual tonnage reported 192,687 tons) estimated yearly tonnage	413,856	19.7
Total	2,100,472	100.0

The above figures are shown *inclusive* of power-house fuel for comparison with the United States Geological Survey statistics. The total output of the 25 operators from whom costs were obtained for 12 months was, *exclusive* of power-house fuel, 1,601,052 tons.

According to statistics issued by the Geological Survey the output of Arkansas during 1918 was 2,227,369 tons, of which 73,920 tons were used at the mine for steam and heat. The commission obtained cost information on 1,879,303 tons produced in 1918 (including power-house fuel), forming 84 per cent of the total as reported by the survey. It publishes in this report cost information on 1,601,052 tons of commercial production, which is 74 per cent of the output reported by the Survey after the exclusion of mine fuel.

2. Classification of producers by number of mines operated.

The costs of the 25 operators shown in the tabulations for Arkansas cover the output of 31 mines. The following table shows the number of mines operated by the different producers:

TABLE 57.—*Number of mines operated by different producers in Arkansas.*

Number of mines run by each operator.	Number of operators.	Proportion of total number.	Production tonnage, 1918.	Proportion of total production.
Sebastian district:		*Per cent.*	*Tons.*	*Per cent.*
1 mine	14	87.4	753,712	52.6
2 mines	1	6.3	12,283	.9
6 mines	1	6.3	667,544	46.5
Total (number of mines, 22)	16	100.0	1,433,539	100.0
Excelsior-Logan district: 1 mine	5	100.0	67,458	100.0
Anthracite district: 1 mine	4	100.0	100,055	100.0
State:				
1 mine	23	92.0	921,225	57.5
2 mines	1	4.0	12,283	.8
6 mines	1	4.0	667,544	41.7
Total (number of mines, 31)	25	100.0	1,601,052	100.0

It will be seen that in the State 23 producers (92 per cent of the total number shown in the table) operated only one mine each and produced 57.5 per cent of the output. The following statement shows the average number of mines operated by a producer, and the average production per mine operated by one-mine operators and by operators of two or more mines, for each district and for the State of Arkansas:

District.	Average number of mines operated by a producer.	Average production per mine operated by—		
		1-mine operators.	Operators of 2 or more mines.	All operators combined.
	Mines.	*Tons.*	*Tons.*	*Tons.*
Sebastian	1.4	53,837	84,978	65,161
Excelsior-Logan	1.0	13,492	.....	13,492
Anthracite	1.0	25,014	.....	25,014
State	1.2	42,662	84,978	51,647

The number and size of mines in Arkansas are shown in further detail in the report for 1917 of the United States Geological Survey, from which the following statistics are derived:[16]

Annual output of mines.	Mines.		Tonnage.	
	Number.	Proportion of total in State.	Average production per mine.	Proportion of total State output.
		Per cent.	*Tons.*	*Per cent.*
200,000 tons and over	.....	.....	.....	.....
100,000 to 199,999 tons	4	3.5	137,884	25.7
50,000 to 99,999 tons	11	9.7	68,872	35.3
10,000 to 49,999 tons	34	29.8	20,084	31.9
Under 10,000 tons	65	57.0	2,335	7.1
Total	114	100.0	18,803	100.0

[16] Mineral Resources of the United States, 1917. Part II, pp. 947–948.

3. Classification of producers by size of output.

The 25 producers tabulated are classified by size of their output in 1918, exclusive of power-house fuel, as follows:

TABLE 58.—*Classification of 25 Arkansas operators by size of output.*

Production during 1918.	Number of operators.	Proportion of total number.	Tonnage produced, 1918.	Proportion of total production.
Sebastian district:		*Per cent.*	*Tons.*	*Per cent.*
Under 50,000 tons	12	75.0	383,846	26.8
50,000 to 99,999 tons	2	12.4	121,957	8.5
100,000 to 499,999 tons	1	6.3	260,192	18.1
500,000 to 999,999 tons	1	6.3	667,544	46.6
Total	16	100.0	1,433,539	100.0
Excelsior-Logan district: Under 50,000 tons	5	100.0	67,458	100.0
Anthracite district: Under 50,000 tons	4	100.0	100,055	100.0
State:				
Under 50,000 tons	21	84.0	551,359	34.4
50,000 to 99,999 tons	2	8.0	121,957	7.6
100,000 to 499,999 tons	1	4.0	260,192	16.3
500,000 to 999,999 tons	1	4.0	667,544	41.7
Total	25	100.0	1,601,052	100.0

If the 10 operators from whom cost reports were received for less than the full 12 months during 1918, and the one operator from whom reports were obtained but in an unusable form, be considered, it will be found that two operators had an average estimated annual production of 62,000 tons. The remaining eight operators had an average estimated annual production of 22,935 tons. Had reports for the full 12 months' period been available from them it would be found that about 85 per cent of the operators produced about 41 per cent of the output.

4. The 1918 costs and sales realizations shown by districts.

There was no change in the official wage scale for bituminous coal miners in Arkansas during 1918. Therefore the labor costs per ton for the period were principally affected by changes in the production tonnage and not by changes in the rate of wages paid labor. The effect of decreased production in increasing labor costs can be clearly seen on Diagram VI (opposite p. 122) and Charts 12 and 13 (opposite p. 126).

Tables 31 to 35 in the Appendix to this report (see pp. 385–389) show the costs and the sales realizations for the Sebastian district arranged from low to high in 10-cent groupings for each period shown. Throughout the tables the costs are shown for the same operators, but the costs of any given operator do not necessarily hold the same relative position in the 10-cent groups for each period. The shift of any operator in his relative position, from period to period, is

generally slight. The tables show, for each quarter and for the year as a whole, by 10-cent groupings, the tonnage produced at that cost, its per cent of the total production, the place of the group in the accumulated percentage, and the number of operators whose costs fell within each 10-cent group.

As there were only five operators who filed returns for the full 12 months in the Excelsior-Logan district, and but four such operators in the Anthracite district, no detailed appendix tables for these districts are shown.

A summary of the significant facts brought out in Appendix Tables 31 to 35 and similar facts for the Excelsior-Logan and Anthracite districts appears in the following tables, in which are compared the true average cost and sales realization, the range of 90 per cent of the output which had the lowest costs and sales realizations, and the extreme range for the entire output of the 25 operators.

BITUMINOUS COAL —ARKANSAS

DIAGRAM VI.

Sebastian District

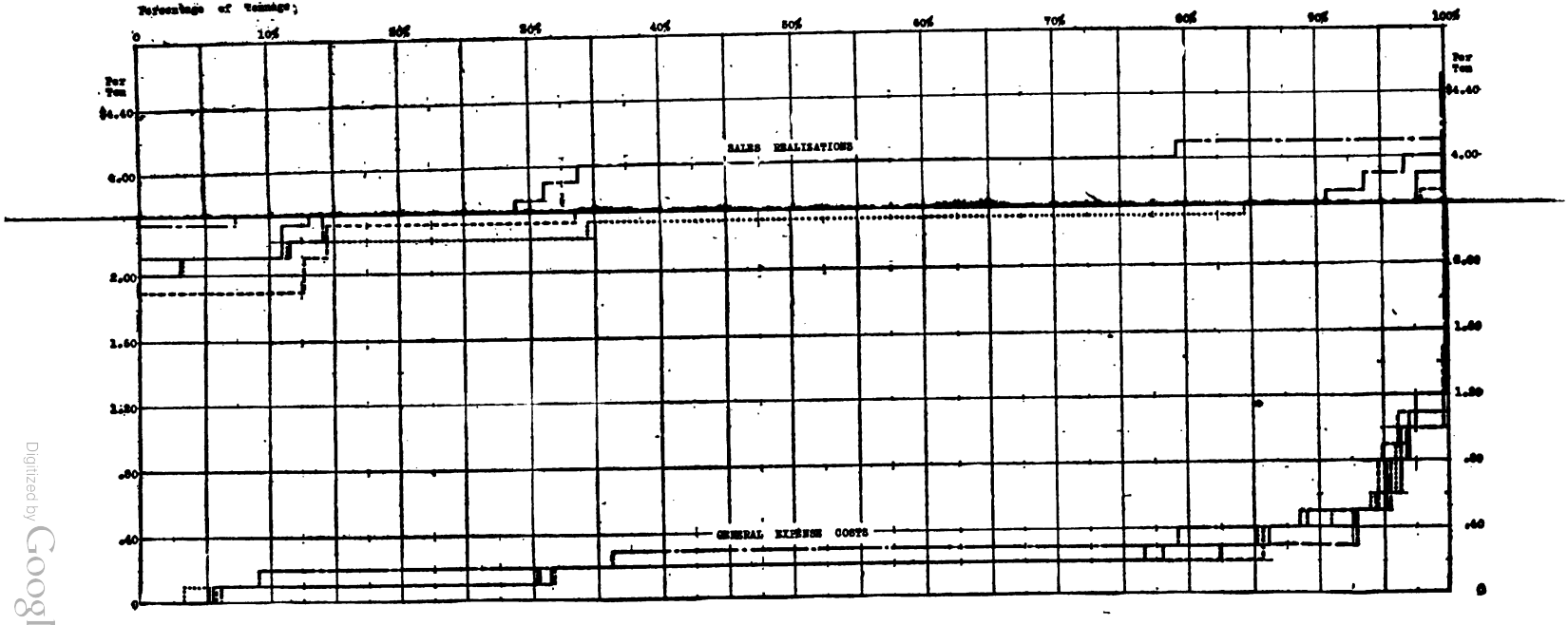


TABLE 59.—*1918 quarterly and yearly revised costs and sales realization for 16 operators in Sebastian district of the State of Arkansas, showing averages and range for 90 per cent and for 100 per cent of total output.*

Period.	Costs per net ton.												Sales realization per net ton.		
	Labor.			Supplies.			General expense.			Total f. o. b. mine.					
	Average.	Range. 90 per cent output.	Range. 100 per cent output.	Average.	Range. 90 per cent output.	Range. 100 per cent output.	Average.	Range. 90 per cent output.	Range. 100 per cent output.	Average.	Range. 90 per cent output.	Range. 100 per cent output.	Average.	Range. 90 per cent output.	Range. 100 per cent output.
January-March	$2.01	$1.58–$2.11	$1.58–$2.90	$0.17	$0.00–$0.21	$0.00–$0.93	$0.27	$0.05–$0.42	$0.05–$1.02	$2.45	$2.04–$3.30	$2.04–$3.55	$2.87	$2.05–$3.45	$2.05–$3.64
April-June	2.06	1.71– 2.25	1.71– 3.10	.23	.04– .31	.04– .94	.29	.02– .51	.02– 1.50	2.58	1.93– 2.99	1.93– 4.86	3.02	2.09– 3.41	2.09– 3.82
July-September	2.18	1.73– 2.52	1.73– 3.48	.27	.05– .35	.05– .97	.28	.02– .36	.02– 1.33	2.73	2.09– 3.32	2.09– 4.83	3.53	2.15– 3.78	2.15– 4.07
October-December	2.37	1.87– 2.60	1.87– 5.03	.32	.07– .40	.07– 1.08	.34	.01– .52	.01– 2.86	3.03	2.32– 3.26	2.32– 8.91	3.77	2.15– 4.12	2.15– 4.12
Year	2.14	1.73– 2.40	1.73– 2.80	.25	.07– .30	.07– .56	.29	.02– .41	.02– 1.10	2.68	2.10– 3.29	2.10– 3.78	3.27	2.11– 3.56	2.11– 3.95

TABLE 60.—*1918 quarterly and yearly revised costs and sales realization for five operators in Excelsior-Logan district of the State of Arkansas, showing averages and range for 90 per cent and for 100 per cent of total output.*

Period.	Costs per net ton.												Sales realization per net ton.		
	Labor.			Supplies.			General expense.			Total f. o. b. mine.					
	Average.	Range.		Average.	Range.		Average.	Range.		Average.	Range.		Average.	Range.	
		90 per cent output.	100 per cent output.		90 per cent output.	100 per cent output.		90 per cent output.	100 per cent output.		90 per cent output.	100 per cent output.		90 per cent output.	100 per cent output.
January-March	$3.06	$2.48-$4.48	$2.48-$4.48	$0.23	$0.07-$0.56	$0.07-$0.56	$0.49	$0.37-$0.70	$0.37-$0.70	$3.78	$2.96-$5.59	$2.96-$5.59	$4.36	$3.41-$4.82	$3.41-$4.82
April-June	3.40	2.82- 3.91	2.82- 7.52	.34	.22- .64	.22- 1.08	.61	.43- 1.20	.43- 1.32	4.35	3.51- 5.35	3.51- 9.92	4.52	3.93- 5.09	3.93- 5.09
July-September	3.67	3.24- 4.14	3.24- 4.14	.45	.04- .62	.04- .62	.52	.43- .83	.43- .83	4.64	4.37- 5.20	4.37- 5.20	4.72	3.85- 5.50	3.85- 5.50
October-December	3.71	3.51- 4.07	3.51- 4.07	.75	.06- 1.30	.06- 1.30	.59	.41- .82	.41- .82	5.05	4.52- 5.24	4.52- 5.24	4.77	4.02- 5.52	4.02- 5.52
Year	3.47	3.21- 4.02	3.21- 4.02	.43	.17- .60	.17- .60	.55	.42- .87	.42- .87	4.45	4.17- 5.07	4.17- 5.07	4.60	3.86-5.22	3.86- 5.22

TABLE 61.—*1918 quarterly and yearly revised costs and sales realization for four operators in Anthracite district of the State of Arkansas, showing averages and range for 90 per cent and for 100 per cent of total output.*

Period.	Costs per net ton.												Sales realization per net ton.		
	Labor.			Supplies.			General expense.			Total f. o. b. mine.					
	Average.	Range.		Average.	Range.		Average.	Range.		Average.	Range.		Average.	Range.	
		90 per cent output.	100 per cent output.		90 per cent output.	100 per cent output.		90 per cent output.	100 per cent output.		90 per cent output.	100 per cent output.		90 per cent output.	100 per cent output.
January-March	$2.77	$2.36-$2.98	$2.36-$3.36	$0.11	$0.02-$0.21	$0.02-$2.25	$0.51	$0.36-$0.57	$0.36-$0.73	$3.39	$2.80-$3.76	$2.80-$4.34	$4.02	$3.17-$4.39	$3.17-$4.97
April-June	3.36	2.49- 4.69	2.49- 6.91	.35	.11- .76	.11- 2.50	.65	.34- 1.27	.34- 1.27	4.36	2.94- 6.72	2.94-10.16	3.85	3.32- 4.62	3.32- 4.76
July-September	3.34	2.96- 3.54	2.96- 3.97	.22	.01- .25	.01- .62	.45	.30- .49	.30- .72	4.01	3.27- 4.26	3.27- 5.31	5.10	3.77- 6.07	3.77- 6.61
October-December	3.55	2.97- 4.01	2.97- 4.01	.33	.09- .64	.09- .64	.58	.39- .72	.39- .72	4.46	3.45- 5.15	3.45- 5.15	5.15	3.86- 6.23	3.86- 6.77
Year	3.23	2.71- 3.59	2.71- 3.83	.23	.07- .33	.07- .66	.52	.34- .61	.34- .72	3.98	3.12- 4.53	3.12- 5.21	4.66	3.54- 5.51	3.54- 6.06

The following table of yearly averages is given for the sake of ready comparison of the three districts:

TABLE 62.—*Average costs and sales realizations of three Arkansas districts for the year 1918.*

District.	Production.	Costs per ton.				Sales realization per ton.	Margin per ton.
		Labor.	Supplies.	General expense.	Total f. o. b. mine.		
	Tons.						
Sebastian	1,433,539	$2.14	$0.25	$0.29	$2.68	$3.27	$0.59
Excelsior-Logan	67,458	3.47	.43	.55	4.45	4.60	.15
Anthracite	100,055	3.23	.23	.52	3.98	4.66	.68

The labor costs in the Excelsior-Logan district and the Anthracite district were much higher than those in the Sebastian district. This is due in a large degree to the difference in the thickness of seam mined, and to some extent also is attributable to the mining methods followed. As will be noted from the tabulation of thickness of seam (see Table 65, p. 130), all of the output from the Excelsior-Logan district came from seams averaging under 3 feet thick, and one-third of that of the Anthracite district came from seams under 3 feet thick, and the balance from seams 3 to 4 feet thick, while in the Sebastian district none of the output came from seams under 3 feet thick, and but 37 per cent came from seams 3 to 4 feet thick.

Detailed statistics are not available to show how far these differences are attributable to the greater use of machines in mining coal in one district as compared with another. The proportion of the total production mined by machines is stated by the United States Geological Survey to have been 7.2 per cent in 1917 for the State as a whole.[17]

5. *Relation of the costs to the sales realizations.*

The following table shows the distribution, by quarters and for the year 1918, between the items of labor, supplies, general expense, and margin of each dollar of sales realization received by the operator:

[17] Mineral Resources of the United States, 1917. Part II, p. 941.

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CHART 12. — Production tonnage, by quarters for 1918, of 25 Operators by producing Districts in Arkansas.

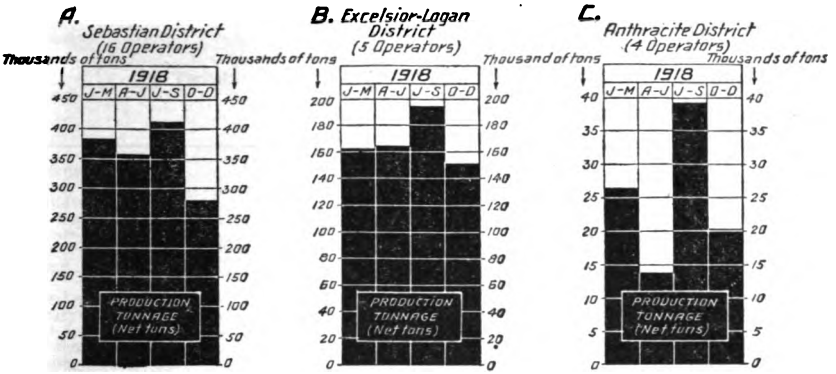


CHART 13. — Average Costs and Sales Realizations per ton, by quarters for 1918, of 25 operators, by producing Districts in Arkansas.

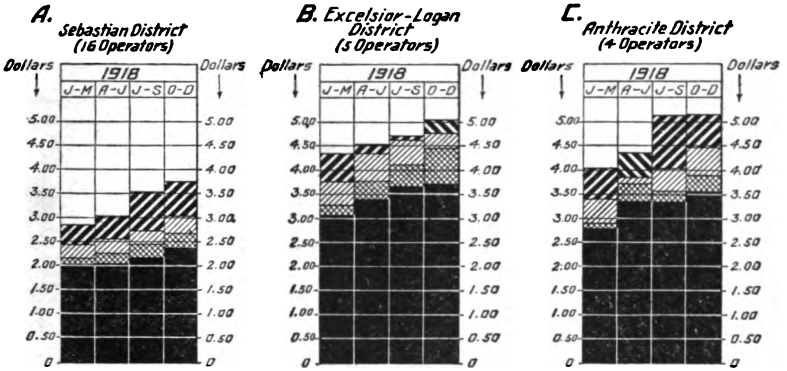


CHART 14. — Distribution of Amount paid by purchaser between the various principal Costs and the Margin, based on each dollar of Sales Realization, by quarters in 1918, in Arkansas.

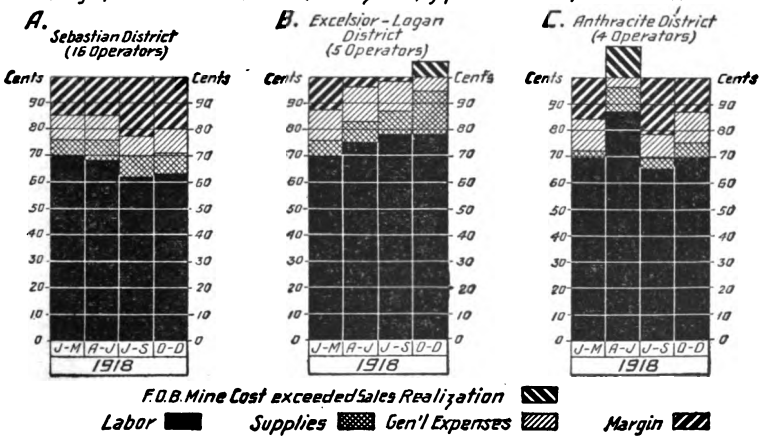


TABLE 63. *Distribution of the amount paid by the purchaser between the various principal costs and the margin, based on each dollar of sales realization, for the Sebastian, Excelsior-Logan, and Anthracite districts in Arkansas, 1918, by quarters and for the year.*

Period.	Costs.				Margin.
	Labor.	Supplies.	General expense.	Total f. o. b. mine.	
	Cents.	*Cents.*	*Cents.*	*Cents.*	*Cents.*
Sebastian district:					
January–March	70	6	9	85	15
April–June	68	8	9	85	15
July–September	62	8	8	77	23
October–December	63	8	9	80	20
Year	65	8	9	82	18
Excelsior-Logan district:					
January–March	70	6	11	87	13
April–June	75	8	13	96	4
July–September	78	9	11	98	2
October–December	78	16	12	[1] 106	[1] 6
Year	76	9	12	97	3
Anthracite district:					
January–March	69	3	12	84	16
April–June	87	9	17	[1] 113	[1] 13
July–September	65	4	9	78	22
October–December	69	6	11	87	13
Year	69	5	11	85	15

[1] The total f. o. b. mines cost exceeded the sales realization.

These facts are shown in graphic form in Chart 14 (facing p. 126).

6. *Comparison of claimed and revised costs.*

The foregoing tables present costs which have in some cases been revised by the accountants of the commission from the claimed figures reported on the original schedules by the operators. Table 36 in the appendix to this report shows the claimed 1918 costs for the Sebastian district compiled in all cases directly from the figures submitted by the operators.

The changes brought about through the revision in the average costs for the year 1918 for the 25 operators were as follows:

Item.	Claimed costs.	Revised costs.	Increase (I) or decrease (D) due to revision.
Sebastian district:			
Production (tons)	1,471,330	1,433,539	[1] 37,791 (D)
Labor ... per ton	$2.09	$2.14	$0.05 (I)
Supplies ... do	.36	.25	.11 (D)
General expense ... do	.34	.29	.05 (D)
Total f. o. b. mine ... do	2.79	2.68	.11 (D)
Excelsior-Logan district:			
Production (tons)	70,731	67,458	[1] 3,273 (D)
Labor ... per ton	$3.31	$3.47	$0.16 (I)
Supplies ... do	.57	.43	.14 (D)
General expense ... do	.57	.55	.02 (D)
Total f. o. b. mine ... do	4.45	4.45	.00
Anthracite district:			
Production (tons)	103,985	100,055	[1] 3,930 (D)
Labor ... per ton	$3.11	$3.23	$0.12 (I)
Supplies ... do	.42	.23	.19 (D)
General expense ... do	.61	.52	.09 (D)
Total f. o. b. mine ... do	4.14	3.98	.16 (D)
State:			
Production (tons)	1,646,046	1,601,052	[1] 44,994 (D)
Labor ... per ton	$2.21	$2.27	$0.06 (I)
Supplies ... do	.38	.25	.13 (D)
General expense ... do	.36	.31	.05 (D)
Total f. o. b. mine ... do	2.95	2.83	.12 (D)

[1] Due to exclusion of power-house fuel.

The increase of 6 cents in the average State revised labor cost over the claimed was caused by the use of the revised production tonnage as a divisor. The total claimed labor cost was $3,635,236 and the total revised labor cost was $3,630,886.

The costs claimed by some operators in Arkansas were obviously open to question as to their accuracy. These operators were required by the commission to file detailed information in support of their claimed costs. The examination of such detailed information revealed the fact that they had sometimes included under labor and supplies items which should have been treated as additions to capital, and under general expense had included charges for maintenance and contingent reserves, officers' salaries greatly in excess of those paid in neighboring operations of similar size, and excessive charges for depreciation and depletion, which had not been computed in accordance with instructions issued by the commission. The chief instances of revision of general expense affected three operators and involved about 5 per cent of the total tonnage of the State. The claimed general expense of these three operators ranged from 79 cents to $1.17 per ton, while the average claimed general expense for the State was but 36 cents.

7. 1918 costs shown by thickness of seam mined.

About 42 per cent of the output of Arkansas came from two producers who operated more than one mine. These producers did not report the costs of each mine separately. In order to include them in a tabulation to show costs by thickness of seam it was necessary to use the average of the seams mined by them. This has led to the inclusion of data in the tabulation for the 25 operators, which to a slight extent vitiates its scientific value, since it is not known whether equal tonnage was derived from mines which had seams above or below the average thickness. The tabulation, by thickness of seam, for the 25 operators follows:

TABLE 64.—*Seam tabulation of revised costs for 25 operators in Arkansas.*

Thickness of seam.	Number of operators.	Production, 1918.	Costs per ton.			
			Labor.	Supplies.	General expense.	Total f. o. b. mine.
Sebastian district:		*Tons.*				
36 to 47 inches	9	534,583	$2.10	$0.17	$0.27	$2.54
48 to 59 inches	5	809,441	2.14	.28	.25	2.67
60 to 71 inches	2	89,515	2.43	.39	.70	3.52
Total	16	1,433,539	2.14	.25	.29	2.68
Excelsior-Logan district: 24 to 35 inches	5	67,458	3.47	.43	.55	4.45
Anthracite district: 36 to 47 inches[1]	4	100,055	3.23	.23	.52	3.98
State:						
24 to 35 inches	6	101,049	3.38	.35	.55	4.28
36 to 47 inches	12	601,047	2.23	.18	.30	2.71
48 to 59 inches	5	809,441	2.14	.28	.25	2.67
60 to 71 inches	2	89,515	2.43	.39	.70	3.52
Total	25	1,601,052	2.27	.25	.31	2.83

[1] Includes one operator with 34-inch seam.

NOTE.—Where two or more mines were operated by one producer the average thickness of seams was used.

In order to eliminate the effect of the inclusion of average thicknesses where producers operated two or more mines a seam tabulation has been made of the 23 one-mine operators. It will be noted from the following table that the tonnage of the 23 one-mine operators was somewhat less regularly distributed among the different thicknesses of seam than was the case with the 25 operators.

TABLE 65.—*Distribution, between seams, of output of 25 operators and 23 one-mine operators in Arkansas.*

Thickness of seam.	16 operators, producing 1,433,529 tons in 1918.		14 operators, producing 753,712 tons in 1918.	
	Number of operators.	Per cent of output.	Number of operators.	Per cent of output.
Sebastian district:				
36 to 47 inches	9	37.3	9	70.9
48 to 59 inches	5	56.5	3	17.2
60 to 71 inches	2	6.2	2	11.9
Total	16	100.0	14	100.0
	5 operators, producing 67,458 tons in 1918.		5 operators, producing 67,458 tons in 1918.	
Excelsior-Logan district: 24 to 35 inches	5	100.0	5	100.0
	4 operators, producing 100,055 tons in 1918.		4 operators, producing 100,055 tons in 1918.	
Anthracite district:				
24 to 35 inches	1	33.6	1	33.6
36 to 47 inches	3	66.4	3	66.4
Total	4	100.0	4	100.0
	25 operators, producing 1,601,052 tons in 1918.		23 operators, producing 921,225 tons in 1918.	
State:				
24 to 35 inches	6	6.3	6	11.0
36 to 47 inches	12	37.5	12	65.2
48 to 59 inches	5	50.5	3	14.1
60 to 71 inches	2	5.7	2	9.7
Total	25	100.0	23	100.0

The tabulation of cost, by thickness of seam, for the 23 one-mine operators follows:

TABLE 66.—*Seam tabulation of revised costs for 23 one-mine operators in Arkansas.*

Thickness of seam.	Number of operators.	Production, 1918.	Costs per ton.			
			Labor.	Supplies.	General expense.	Total f. o. b. mine.
Sebastian district:		*Tons.*				
36 to 47 inches	9	534,583	$2.10	$0.17	$0.27	$2.54
48 to 59 inches	3	129,614	2.08	.15	.18	2.41
60 to 71 inches	2	89,515	2.43	.39	.70	3.52
Total	14	753,712	2.14	.19	.31	2.64
Excelsior-Logan district: 24 to 35 inches	5	67,458	3.47	.43	.55	4.45
Anthracite district: 36 to 47 inches [1]	4	100,055	3.23	.23	.52	3.98
State:						
24 to 35 inches	6	101,049	3.38	.35	.55	4.28
36 to 47 inches	12	601,047	2.23	.18	.30	2.71
48 to 59 inches	3	129,614	2.08	.15	.18	2.41
60 to 71 inches	2	89,515	2.43	.39	.70	3.52
Total	23	921,225	2.35	.22	.35	2.92

[1] Includes one operator with 34-inch seam.

A summary of the principal facts relating to labor, supplies, and total f. o. b. mine cost of the 23 one-mine operators, arranged in comparative form for the districts and the State, is shown below:

Thickness of seam.	Sebastian district.			Excelsior-Logan district.			Anthracite district.			State.		
	Labor.	Supplies.	Total f. o. b. mine cost.	Labor.	Supplies.	Total f. o. b. mine cost.	Labor.	Supplies.	Total f. o. b. mine cost.	Labor.	Supplies.	Total f. o. b. mine cost.
24 to 35 inches	.....	.....	.....	$3.47	$0.43	$4.45	.....	.....	.....	$3.38	$0.35	$4.28
36 to 47 inches	$2.10	$0.17	$2.54	.....	.....	.....	[1]$3.23	[1]$0.23	[1]$3.98	2.23	.18	2.71
48 to 59 inches	2.08	.15	2.41	.....	.....	.....	.....	.....	.....	2.08	.15	2.41
60 to 71 inches	2.43	.39	3.52	.....	.....	.....	.....	.....	.....	2.43	.39	3.52
Total	2.14	.19	2.64	3.47	.43	4.45	3.23	.23	3.98	2.35	.22	2.92

[1] Includes 1 operator with 34-inch seam.

In general there was a decrease in the average labor cost per ton with the increase in the thickness of seam until seams 5 feet and over are reached. The relatively high labor cost of the two operators in the latter seams is probably due to some special local conditions. There is no close correlation shown between the various supplies costs and thickness of seam.

General expense is less affected than labor cost by conditions of a physical nature, like thickness of seam, but is closely connected with the commercial and financial economies of operation. The following comparison of the 23 one-mine operators with the 2 operators of two or more mines is of interest.

TABLE 67.—*Comparison of average revised costs: Operators of 1 mine with operators of 2 or more mines in Arkansas.*

District.	Number of operators.	Number of mines.	Output, 1918.			Costs per ton.			
			Total output.	Output per operator.	Output per mine.	Labor.	Supplies.	General expense.	Total f. o. b. mine.
Sebastian:			*Tons.*	*Tons.*	*Tons.*				
1 mine	14	14	753,712	53,837	53,837	$2.14	$0.19	$0.31	$2.64
2 or more mines	2	8	679,827	339,914	84,978	2.15	.31	.26	2.72
Total	16	22	1,433,539	89,596	65,161	2.14	.25	.29	2.68
Excelsior-Logan:									
1 mine	5	5	67,458	13,492	13,492	3.47	.43	.55	4.45
2 or more mines	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total	5	5	67,458	13,492	13,492	3.47	.43	.55	4.45
Anthracite:									
1 mine	4	4	100,055	25,014	25,014	3.23	.23	.52	3.98
2 or more mines	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total	4	4	100,055	25,014	25,014	3.23	.23	.52	3.98
State:									
1 mine	23	23	921,225	40,053	42,662	2.35	.22	.35	2.92
2 or more mines	2	8	679,827	339,914	84,978	2.15	.31	.26	2.72
Total	25	31	1,601,052	64,042	51,647	2.27	.25	.31	2.83

There were no reports from operators of two or more mines in the Excelsior-Logan and Anthracite districts. In the Sebastian district and for the State as a whole the general expense costs were lower for the operators of two or more mines than those for the one-mine operators.

Part III. Comparative costs and sales realizations, August, 1917–December, 1918.

1. Representativeness of statistics presented.

Representative figures were not obtained by the commission for costs and sales realizations prior to August, 1917, in the various Arkansas districts. Use has, therefore, been made of the monthly reports covering the last five months of 1917. Nearly every one of the operators that appears in the 1917 appears also in the 1918 figures, but there are a few unimportant exceptions, which do not affect the general comparability of the 1917 figures with those of 1918. The average total f. o. b. mine costs sales realizations, and margins of about 75 per cent of the entire output mined in the districts are presented for these districts.

2. The revised costs, sales realizations and production figures, and analyses of the fluctuations, by districts, August, 1917–December, 1918.

SEBASTIAN DISTRICT.

The significance of the 10 periods selected for presenting the figures for August, 1917–December, 1918, for the Sebastian district is as follows:

August, 1917.—The greater part of this month was prior to the fixing, by Executive order of August 21, 1917, of maximum prices for bituminous coal not sold under contracts made prior to that date, and the establishment of a Fuel Administration to regulate the fuel situation.

September, 1917.—This period directly followed the fixing, by Executive order of August 21, 1917, of maximum prices for bituminous coal not sold under contracts made prior to that date and the establishment of a Fuel Administration to regulate the fuel situation. The 1917 wage scale continued in operation during this month.

October, 1917.—This period followed the change in maximum prices effective October 1, 1917, made by the Fuel Administration in the maximum prices established for this district.

November–December, 1917.—This period directly followed the increase in maximum prices allowed by Executive order in consequence of the adoption of a new wage scale (1917–18) which was higher than that adopted earlier in 1917.

January–March, 1918.—During this period the prices fixed November 1, 1917, continued. The number of operators in the district from whom 1918 figures were obtained increased over that for whom August–December, 1917, figures were available.

April, 1918.—This period directly follows the change in maximum prices effective March 29, 1918, made by the Fuel Administration in established maximum base prices for this district. During April the base prices on a part of the output sold were subject to a summer reduction of 60 cents per ton from the base.

May, 1918.—During May, the base prices effective March 29, 1918, were subject, on a part of the output sold, to a summer reduction of 45 cents per ton from the base. Effective May 25, 1918, the Fuel Administration made a reduction of 10 cents per ton in the existing maximum prices for the district.

June, 1918.—During June the base prices effective March 29, 1918, and modified by the Fuel Administration's order of May 25, 1918, were subject, on a part of the output sold, to a summer reduction of 30 cents per ton from the base.

July, 1918.—During July the base prices effective March 29, 1918, and modified by the Fuel Administration's order of May 25, 1918, were subject, on a part of the output sold, to a summer reduction of 15 cents per ton from the base.

August–December, 1918.—Throughout this period the base prices effective March 29, 1918, and modified by the Fuel Administration's order of May 25, 1918, were in effect.

TABLE 68.—*Revised costs and sales realizations of operators in the Sebastian district of Arkansas, August, 1917–December, 1918.*

Period.	Number of operators.	Production.	Total f. o. b. mine cost per ton.	Sales realization per ton.	Margin per ton.
		Tons.			
August, 1917	15	74,269	$2.31	$2.43	$0.12
September, 1917	15	83,531	2.09	2.34	.25
October, 1917	15	76,206	2.20	2.50	.30
November–December, 1917	15	199,507	2.64	2.97	.33
January–March, 1918	16	384,150	2.45	2.87	.42
April, 1918	16	110,539	2.61	2.94	.33
May, 1918	16	133,042	2.56	3.04	.48
June, 1918	16	113,631	2.58	3.09	.51
July, 1918	16	139,671	2.64	3.16	.52
August–December, 1918	16	552,506	2.90	3.74	.84

On August 21, 1917, the Government first fixed prices under the Lever Act. The prices fixed by Executive order for the sale of coal not then under contract in this district on August 21, 1917, were as follows: Run-of-mine, $2.65; prepared sizes, $2.90; slack, $2.40. The average proportions which these three classes of coal formed of the total output, based on actual returns for all operators in this district

who reported to the Federal Trade Commission during the period August–December, 1917, were as follows: Run-of-mine, 65 per cent; prepared sizes, 21 per cent; slack, 14 per cent. Had the entire output of the 15 operators been sold at the prices established August 21, 1917, it would have brought them a sales realization of $2.67 per ton. The 15 operators actually received, during September, 1917, a sales realization of $2.34 per ton, which was 9 cents less than they received during August ($2.43 per ton). The average total f. o. b. mine cost of the 15 operators was, for September, 1917, $2.09 per ton (a decrease of 22 cents from that in August), while their tonnage was 83,531 tons (an increase from that in August—74,269 tons). Their margin during September was 25 cents per ton—an increase of 13 cents over August.

Effective October 1, 1917, the Fuel Administration made a change in the existing maximum prices for the district. The new prices were as follows: Run-of-mine, $3.05; prepared sizes, $3.40; slack, $2.40. Applying to these prices the proportions (already stated) which these three classes of coal form of the total output, a sales realization of $3.03 per ton was possible had the entire output been sold at the maximum prices. The total f. o. b. mine cost of the 15 operators during October was $2.20 per ton—an increase of 11 cents over that of September. The production in October showed a decrease, being 76,206 tons. The sales realization was $2.50 (an increase of 16 cents), and the margin 30 cents per ton (an increase of 5 cents). These latter increases are principally attributable to the increased official prices.

Effective November 1, 1917, a 45-cent increase in the established maximum prices was allowed by Executive order, to take care of an increase in the wage scale which went into effect at that time. The average f. o. b. mine cost of the 15 operators for November–December, 1917 ($2.64 per ton), increased 44 cents over that for September–October, 1917, this increase being principally attributable to the higher wage scale. The output increased to an average of 99,754 tons per month. Their average sales realization for November–December, 1917, was $2.97 per ton (an increase of 47 cents), and their margin 33 cents per ton (an increase of 3 cents).

During January–March, 1918, the average total f. o. b. mine cost of the 16 operators who reported for the 12 months in 1918 was $2.45 per ton, their sales realization $2.87, and their margin 42 cents per ton.

Effective March 29, 1918, new maximum prices were fixed by the Fuel Administration for the district. The new prices, including the 45-cent increase effective November 1, 1917, because of the wage increase, were as follows: Run-of-mine, $4.15; prepared sizes, $5.05; slack or screenings, $2.85. The prices on run-of-mine and prepared

sizes, however, were subject to the following summer reductions: March, 75 cents per ton; April, 60 cents; May, 45 cents; June, 30 cents; July, 15 cents. On August 1 the base prices named in the order became effective.

The maximum prices in effect for April, 1918, made a possible sales realization of $3.64 per ton, had the entire output been sold at the maximum prices, in the already-stated proportion of run-of-mine, prepared sizes, and slack of the August–December, 1917, output. The total f. o. b. mine cost of the 16 operators during April, 1918, was $2.61 per ton—an increase of 16 cents over the average for January-March. The production in April showed a decrease, being 110,539 tons, as compared with an average for January–March of 128,050 tons. The sales realization was $2.94 (an increase of 7 cents), and the margin 33 cents per ton (a decrease of 9 cents).

The possible sales realization at the prices in effect for May, 1918, was $3.77 per ton. The total f. o. b. mine cost during May, 1918, was $2.56 per ton—a decrease of 5 cents from that of April. There was a marked increase in the output, the production in May being 133,042 tons. The sales realization in May was $3.04 (an increase of 10 cents), and the margin 48 cents per ton (an increase of 15 cents).

Effective May 25, 1918, the Fuel Administration made a 10-cent reduction in the existing maximum prices for the district. The possible sales realization at the prices in effect for June, 1918, was $3.80 per ton. The f. o. b. mine cost of the 16 operators for June, 1918 ($2.58 per ton), increased 2 cents over that for May, 1918. Their output decreased to 113,631 tons. Their average sales realization for June, 1918, was $3.09 per ton (an increase of 5 cents), and their margin 51 cents per ton (an increase of 3 cents).

The possible sales realization at the prices in effect for July, 1918, was $3.93 per ton. The f. o. b. mine cost of the 16 operators for July, 1918 ($2.64 per ton), increased 6 cents over that for June. The output increased to 139,671 tons per month. Their average sales realization for July was $3.16 per ton (an increase of 7 cents over June), and their margin 52 cents per ton (an increase of 1 cent).

The possible sales realization at the prices in effect from August 1, 1918, to the end of the year, was $4.06 per ton. The average f. o. b. mine cost for the 16 operators during August–December, 1918, was $2.90 per ton—an increase of 26 cents over July. The production decreased, averaging 110,501 tons per month, as compared with that of July (139,671 tons). The sales realization during August–December, 1918, was $3.74 per ton (an increase of 58 cents over July), and the margin 84 cents per ton (an increase of 32 cents).

EXCELSIOR-LOGAN DISTRICT.

The significance of the nine periods selected for presenting the figures for August, 1917–December, 1918, for the Excelsior-Logan district is as follows:

August, 1917.—This period has been described under Sebastian district (see p. 132).

September–October, 1917.—This period directly followed the fixing, by Executive order of August 21, 1917, of maximum prices for bituminous coal not sold under contracts made prior to that date, and the establishment of a Fuel Administration to regulate the fuel situation. The 1917 wage scale continued in operation during these two months. Effective October 27, 1917, the Fuel Administration made a change in the maximum prices covering the output of a part of the district.

November–December, 1917.—This period has been described under Sebastian district (see p. 132).

January–March, 1918.—During this period the prices fixed November 1, 1917, continued. The number of operators in the district from whom 1918 figures were obtained was less than that for whom August–December, 1917, figures were available.

The next five periods (April, 1918; May, 1918; June, 1918; July, 1918; and August–December, 1918) have already been described under Sebastian district.

TABLE 69.—*Revised costs and sales realization of operators in the Excelsior-Logan district of Arkansas, August, 1917–December, 1918.*

Period.	Number of operators.	Production.	Total f. o. b. mine cost per ton.	Sales realization per ton.	Margin per ton.
		Tons.			
August, 1917	7	7,180	$3.55	$3.66	$0.11
September–October, 1917	7	10,928	3.68	3.55	[1].13
November–December, 1917	7	11,814	3.72	4.28	.56
January–March, 1918	5	16,221	3.78	4.36	.58
April, 1918	5	4,415	4.57	4.47	[1].10
May, 1918	5	5,967	4.27	4.55	.28
June, 1918	5	6,066	4.26	4.54	.28
July, 1918	5	6,297	4.48	4.50	.02
August–December, 1918	5	28,492	4.89	4.79	[1].10

[1] Amount by which total f. o. b. mine cost exceeded sales realization.

On August 21, 1917, the Government first fixed prices under the Lever Act. The prices fixed by Executive order for the sale of coal not then under contract in this district on August 21, 1917, were as follows: Run of mine, $2.65; prepared sizes, $2.90; slack, $2.40. The average proportions which these three classes of coal formed of the total output, based on actual returns for all operators in this district who reported to the Federal Trade Commission during the period,

August–December, 1917, were as follows: Run of mine, 8 per cent; prepared sizes, 70 per cent; slack, 22 per cent. Had the entire output of the seven operators been sold at the prices established August 21, 1917, it would have brought them a sales realization of $2.77 per ton. The seven operators actually received, during September–October, 1917, a sales realization of $3.55 per ton, which was 11 cents less than they received during August ($3.66 per ton). The average total f. o. b. mine cost of the seven operators was, for September, 1917, $3.68 per ton, an increase of 13 cents over that in August, while their average monthly tonnage was 5,464 tons, a decrease from that in August—7,180 tons. Their total f. o. b. mine cost during September–October exceeded their sales realization by 13 cents per ton, a net decrease of 24 cents from August.

Effective October 27, 1917, the Fuel Administration made a change in the existing maximum prices for that part of the district known as the Paris Field. The new prices were as follows: Prepared sizes, $4.50; slack or screened, $2. Of the seven operators shown in Table 69, two operators, who produced about 43 per cent of the total output shown in the table for August–December, 1917, were in the Paris Field. Effective November 1, 1917, a 45-cent increase in the established maximum prices was allowed by Executive order, to take care of an increase in the wage scale which went into effect at that time. The average f. o. b. mine cost of the seven operators for November–December, 1917 ($3.72 per ton), increased 4 cents over that for September–October, 1917. The output increased to an average of 5,907 tons per month. Their average sales realization for November–December, 1917, was $4.28 per ton, an increase of 73 cents over September–October, and their margin 56 cents per ton, a net increase of 69 cents.

During January–March, 1918, the average total f. o. b. mine cost of the five operators who reported for the 12 months in 1918 was $3.78 per ton, their sales realization $4.36, and their margin 58 cents per ton.

Effective March 29, 1918, new maximum prices were fixed by the Fuel Administration for the district. The new prices (including the 45-cent increase effective November 1, 1917, because of the wage increase), were as follows: Run of mine, $4.80; prepared sizes, $5.60; slack or screenings, $3.05. The prices on run of mine and prepared sizes, however, were subject to the following summer reductions: March, 75 cents per ton; April, 60 cents; May, 45 cents; June, 30 cents; July, 15 cents. On August 1 the base prices named in the order became effective.

The maximum prices in effect for April, 1918, made a possible sales realization of $4.51 per ton had the entire output been sold at the maximum prices, in the already-stated proportion of run of mine,

prepared sizes, and slack of the August–December, 1917, output. The total f. o. b. mine cost of the five operators during April, 1918, was $4.57 per ton, an increase of 79 cents over the average for January–March. The production in April showed a decrease, being 4,415 tons as compared with an average for January–March of 5,415 tons. Their sales realization was $4.47, an increase of 11 cents, and the total f. o. b. mine cost exceeded the sales realization by 10 cents per ton, a net decrease of 68 cents.

The possible sales realization at the prices in effect for May, 1918, was $4.62 per ton. The total f. o. b. mine cost during May, 1918, was $4.27 per ton, a decrease of 30 cents from that of April. There was a marked increase in the output, the production in May being 5,967 tons. Their sales realization in May was $4.55, an increase of 8 cents, and the margin 28 cents per ton, a net increase of 38 cents.

Effective May 25, 1918, the Fuel Administration made a 10-cent reduction in the existing maximum prices for the district. The possible sales realization at the prices in effect for June, 1918, was $4.64 per ton. The f. o. b. mine cost of the five operators for June, 1918 ($4.26 per ton), decreased 1 cent from that for May, 1918. Their output increased to 6,066 tons. Their average sales realization for June, 1918, was $4.54 per ton (a decrease of 1 cent), and their margin 28 cents per ton, the same as in May.

The possible sales realization at the prices in effect for July, 1918, was $4.76 per ton. The f. o. b. mine cost of the five operators for July, 1918 ($4.48 per ton), increased 22 cents over that for June. The output increased to 6,297 tons per month. Their average sales realization for July was $4.50 per ton, a decrease of 4 cents from June, and their margin 2 cents per ton, a decrease of 26 cents.

The possible sales realization at the prices in effect from August 1, 1918, to the end of the year was $4.88 per ton. The average f. o. b. mine cost for the five operators during August–December, 1918, was $4.89 per ton, an increase of 41 cents over July. The production decreased, averaging 5,698 tons per month, as compared with that of July (6,297 tons). The sales realization during August–December, 1918, was $4.79 per ton, an increase of 29 cents over July, and the total f. o. b. mine cost exceeded the sales realization by 10 cents per ton, a net decrease of 12 cents from July.

ANTHRACITE DISTRICT.

Maximum prices for the output of the Anthracite district were first fixed by the Fuel Administration's order effective January 5, 1918. The costs and sales realizations during the five months August–December, 1917, appear to have been somewhat affected in the Anthracite district by the course of events in the bituminous coal-producing districts in Arkansas and neighboring States.

The significance of the 11 periods selected for presenting the figures for August, 1917–December, 1918, for the Anthracite district is as follows:

August, 1917.—The greater part of this month was prior to the fixing, by Executive order of August 21, 1917, of maximum prices for bituminous coal not sold under contracts made prior to that date, and the establishment of a Fuel Administration to regulate the fuel situation.

September–October, 1917.—This period directly followed the fixing, by Executive order of August 21, 1917, of maximum prices for bituminous coal and the establishment of the Fuel Administration. The 1917 wage scale continued in operation during these two months.

November–December, 1917.—Effective November 1, 1917, a 45-cent increase in the maximum prices for bituminous coal was allowed by Executive order in consequence of the adoption of a new wage scale (1917–18) which was higher than that adopted earlier in 1917.

January–March, 1918.—Effective January 5, 1918, the Fuel Administration first established maximum prices for this district. The number of operators in the district from whom 1918 costs were obtained was less than that for whom August–December, 1917, figures were available.

April, 1918.—This period shows the effect of the decrease in production, consequent to the lessening of demand with the approach of spring, in a coal primarily used for domestic consumption.

May, 1918.—Effective May 15, 1918, the Fuel Administration made a change in the existing maximum prices for the district. The effect on production of the lack of demand is apparent.

June, 1918.—This period shows a marked increase in production over the previous two months.

July, 1918.—Effective July 10, 1918, the Fuel Administration made a change in maximum prices for this district and established maximum base prices. During July the base prices on a part of the output sold were subject to a summer reduction of 45 cents per ton from the base.

August, 1918.—During August the base prices effective July 10, 1918, were subject, on a part of the output sold, to a summer reduction of 30 cents per ton from the base.

September, 1918.—During September the base prices effective July 10, 1918, were subject, on a part of the output sold, to a summer reduction of 15 cents per ton from the base.

October–December, 1918.—Throughout this period the base prices established July 10, 1918, were in effect.

In the statistics published by the Geological Survey in its 1917 annual report the production of anthracite coal from the Spadra mines in Johnson County and from the Bernice mines in Pope

County was not separately shown from that of bituminous coal. At the time when prices were fixed by Executive order on Pennsylvania anthracite (Aug. 23, 1917) no prices were fixed for the output from the small bodies of anthracite coal outside of Pennsylvania. In order to make possible a comparison of the costs and sales realizations in the Anthracite district with those of the two bituminous coal districts in Arkansas, statistics are shown in Table 70 for the entire period August, 1917–December, 1918:

TABLE 70.—*Revised costs and sales realizations of operators in the Anthracite district of Arkansas, August, 1917–December, 1918.*

Period.	Number of operators.	Production.	Total f. o. b. mine cost per ton.	Sales realization per ton.	Margin per ton.
		Tons.			
August, 1917	10	36,343	$2.98	$3.86	$0.88
September–October, 1917	10	43,696	3.43	3.84	.41
November–December, 1917	10	78,020	3.75	4.78	1.03
January–March, 1918	4	26,537	3.39	4.02	.63
April, 1918	4	2,665	5.45	3.31	[1] 2.14
May, 1918	4	2,953	4.59	3.34	[1] 1.25
June, 1918	4	8,332	3.94	4.20	.26
July, 1918	4	14,750	3.53	4.67	1.14
August, 1918	4	12,650	4.18	5.58	1.40
September, 1918	4	11,949	4.42	5.25	.83
October–December, 1918	4	20,219	4.46	5.15	.69

[1] The total f. o. b. mine cost exceeded the sales realization

During August, 1917, the 10 operators in Table 70 had a total f. o. b. mine cost of $2.98 per ton, a sales realization of $3.86, and a margin of 88 cents per ton. Their f. o b. mine cost during September–October was $3.43 per ton—an increase of 45 cents over August. This is principally attributable to the decrease in output, which averaged 21,848 tons per month during September–October, as compared with 36,343 tons in August. The sales realization during September–October was $3.84 (a decrease of 2 cents), and the margin 41 cents per ton (a decrease of 47 cents). The f. o. b. mine cost in November–December, 1917, was $3.75—an increase of 32 cents over that for September–October. The output also increased, averaging 39,010 tons as compared with an average of 21,848 tons for September–October. The increase in f. o. b. mine cost is probably attributable to an increase in the wage scale, similar to the increase that took place in bituminous. The sales realization in November–December was $4.78—an increase of 94 cents over that in September–October. Apparently this increased realization had some connection with the increased maximum prices, effective October 27, 1917, made by the Fuel Administration for coal mined in the Paris field. The Paris field, sometimes classed as "semianthracite," received an increase over the previous official maximum prices amounting to about $1.20 per ton on the output (see p. 137).

Effective January 5, 1918, the Fuel Administration first established prices for the anthracite coal mined at the Bernice and Spadra mines. The prices established were as follows:

Coal mined in—	Not to be sold in excess of following prices:						
	Grate.	Egg.	Stove.	No. 4 nut.	Pea.	Buck-wheat.	Slack.
Bernice mines, Russelville, Ark.	$7.30	$7.55	$8.30	$8.30	$6.30	$2.85	$2.50
Spadra mines, Spadra, Ark.	6.80	6.80	.....	7.30	4.80	.....	2.50

During January–March, 1918, the average total f. o. b. mine cost of the four operators who reported for the 12 months in 1918 was $3.39 per ton, their sales realization $4.02, and their margin 63 cents per ton. During April, 1918, the average f. o. b. mine cost of the four operators was $5.45 per ton—an increase of $2.06 per ton over that for January–March. The April output was 2,665 tons—a heavy decrease as compared with the average monthly production of 8,846 tons for January–March. The sales realization was $3.31 per ton—a decrease of 71 cents from that for January–March ($4.02 per ton). The total f. o. b. mine cost exceeded the sales realization by $2.14 per ton—a *net* decrease of $2.77.

Effective May 15, 1918, the Fuel Administration made a change in the existing maximum prices for the district. The new prices were as follows:

Coal mined in—	Not to be sold in excess of following prices.						
	Grate.	Egg.	Stove.	No. 4 nut.	Pea.	Buck-wheat.	Slack.
Bernice Mines, Russellville, Ark.	$7.75	$8.00	$8.75	$8.75	$6.75	$2.85	$2.50
Spadra Mines, Spadra, Ark.	7.25	7.25	.....	7.75	5.25	.....	2.50

The total f. o. b. mine cost of the four operators during May was $4.59 per ton—a decrease of 86 cents from that of April. The production in May showed an increase, being 2,953 tons. Their sales realization was $3.34—an increase of 3 cents—and the f. o. b. mine cost exceeded the sales realization by $1.25 per ton —a *net* increase of 89 cents. During June, 1918, the four operators had an average f. o. b. mine cost of $3.94 per ton—a decrease of 65 cents per ton from May. The production in June almost trebled—to 8,332 tons. The average sales realization of the four operators for June, 1918, was $4.20 per ton—an increase of 86 cents over May—and their margin 26 cents per ton—a *net* increase of $1.51 per ton over May.

Effective July 10, 1918, the Fuel Administration made a change in the existing maximum prices for the district. The new prices were as follows:

Coal mined in—	Not to be sold in excess of following prices.						
	Grate.	Egg.	Stove.	No. 4 nut.	Pea.	Buck-wheat.	Slack.
Bernice Mines, Russellville, Ark.	$8.75	$9.00	$9.75	$9.75	$6.75	$4.75	$2.50
Spadra Mines, Spadra, Ark.	8.75	8.75	.....	9.25	5.25	.....	2.50

The foregoing prices were subject to the following monthly summer reductions, which, however, were not to apply to slack coal: Month of April, 90 cents; May, 75 cents; June, 60 cents; July, 45 cents; August, 30 cents; and September, 15 cents.

The total f. o. b. mine cost of the four operators during July, 1918, was $3.53 per ton—a decrease of 41 cents from June. The production in July showed a heavy increase, being 14,750 tons per month, as compared with 8,332 tons in June. Their sales realization was $4.67 (an increase of 47 cents), and the margin $1.14 per ton (an increase of 88 cents). The average total f. o. b. mine cost of the four operators was, for August, 1918, $4.18 per ton (an increase of 65 cents over that in July), while their average monthly tonnage was 12,650 tons (a decrease from that in July—14,750 tons). Their sales realization during August was $5.58 per ton (an increase of 91 cents over July), and their August margin was $1.40 per ton (an increase of 26 cents over July). The average f. o. b. mine cost of the four operators for September, 1918 ($4.42 per ton), increased 24 cents over that for August. The output decreased to 11,949 tons. Their average sales realization for September, 1918, was $5.25 per ton (a decrease of 33 cents from August), and their margin 83 cents per ton (a decrease of 57 cents).

During the period October–December, 1918, there was no change in the official maximum prices for this district. The four operators had an average f. o. b. mine cost of $4.46 per ton—an increase of 4 cents per ton over September. Their average monthly production during October–December, 1918 (6,740 tons), was much lower than that of September (11,949 tons). The average sales realization of the four operators for October–December, 1918, was $5.15 per ton, and their margin 69 cents per ton.

CHAPTER VI.—OKLAHOMA.

Part I. Introduction.

1. Definition of the various producing districts or fields.

The distribution of output between the various coal-producing districts in Oklahoma has been made in accordance with the areas or the seams included in those districts as defined by the Fuel Administration in its order effective March 29, 1918. The output comprised in the different districts is as follows:

McAlester Vein district includes McAlester vein in Pittsburg and Latimer Counties.

Eastern district includes Le Flore, Haskell, Okmulgee, Tulsa, Rogers, and Coal Counties, and the Hartshorn-Wilburton vein in Pittsburg and Latimer Counties.

Since the Fuel Administration gave no specific titles to these districts, the foregoing descriptive titles are used in this report.

The location of these districts is shown on the map of Oklahoma (facing p. 144).

2. General statistics of output.

The statistics in this section for coal produced in Oklahoma have been compiled from reports published by the United States Geological Survey.

The proportion which the output of Oklahoma has formed of the total bituminous coal output of the United States is as follows:

	Per cent.		Per cent.
1911	0.8	1915	0.8
1912	.8	1916	.7
1913	.9	1917	.8
1914	.9	1918	.8

The following statement shows the proportions which the output of the various districts formed of the State total:

Year.	Production.	Proportion of total produced in each district.	
		McAlester Vein district.[1]	Eastern district.[2]
	Tons.	*Per cent.*	*Per cent.*
1911	3,074,242	13	87
1912	3,675,418	14	86
1913	4,165,770	14	85
1914	3,988,613	14	86
1915	3,693,580	13	87
1916	3,608,011	11	89
1917	4,386,844	12	88

[1] McAlester Vein in Pittsburg and Latimer Counties.
[2] Leflore, Haskell, Okmulgee, Tulsa, Rogers, and Coal Counties, and the Hartshorn-Wilburton Vein in Pittsburg and Latimer Counties.

The United States Geological Survey has collected information on the "average value per ton" for a long series of years. This average is obtained by dividing the total selling value by the total tonnage.[18] The following table shows this information for 1911–1917:

TABLE 71.—*Production and average value, 1911–1917, by producing districts and State of Oklahoma.*

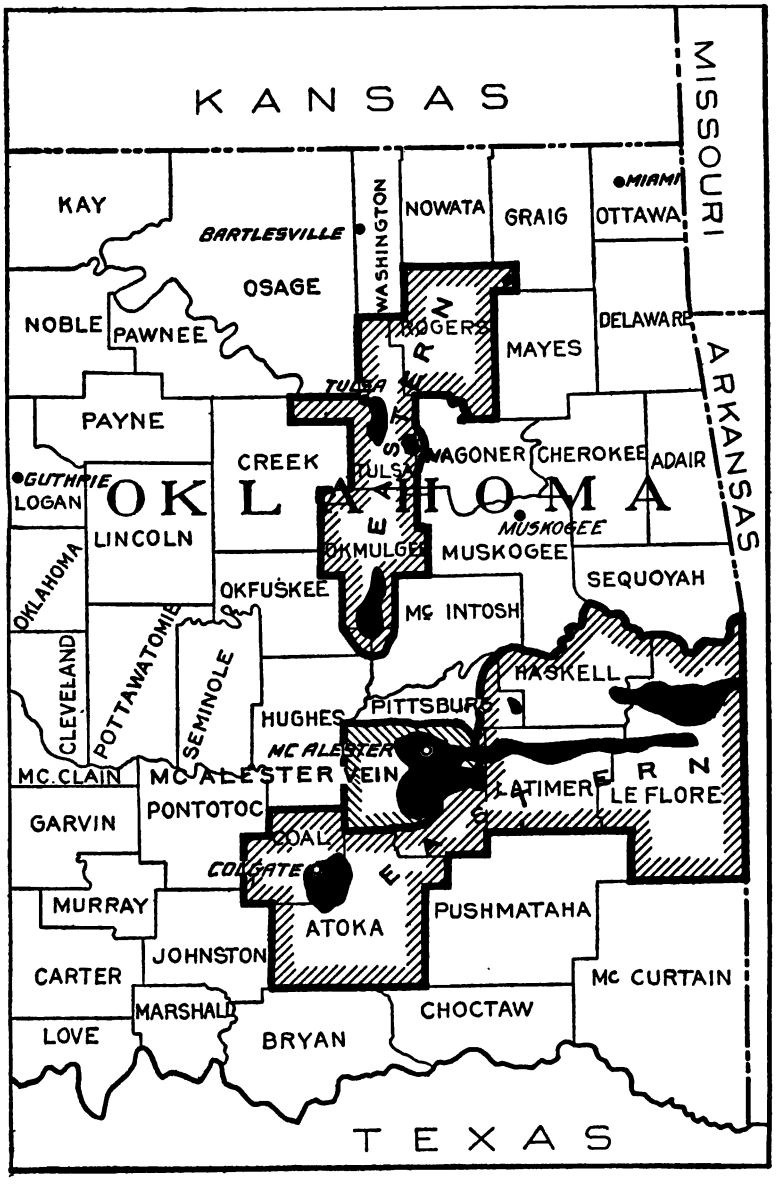
Year.	McAlester Vein district.[1]		Eastern district.[2]		State.	
	Production.	Average value per ton.	Production.	Average value per ton.	Production.	Average value per ton.
	Tons.		*Tons.*		*Tons.*	
1911	411,369	$2.38	2,662,873	$1.99	3,074,242	$2.05
1912	500,645	2.43	3,174,773	2.10	3,675,418	2.14
1913	574,303	2.26	3,591,467	2.02	4,165,770	2.05
1914	554,273	2.30	3,434,340	2.02	3,988,613	2.06
1915	473,880	2.34	3,219,700	1.97	3,693,580	2.01
1916	394,660	2.34	3,213,351	2.05	3,608,011	2.09
1917	520,147	3.05	3,866,697	2.78	4,386,844	2.81

[1] McAlester Vein in Pittsburg and Latimer Counties.
[2] Leflore, Haskell, Okmulgee, Tulsa, Rogers, and Coal Counties, and the Hartshorn-Wilburton Vein in Pittsburg and Latimer Counties.

In its reports for 1916 and 1917 the Geological Survey published "average values" in more detail than in previous reports. The

[18] "The value of coal given in this report is the realization value at the mine f. o. b. cars, and the average value per ton is the average realization price obtained by dividing the total value by the number of tons sold or produced. The coal used at the mine, the coal coked by the producing company, and the coal used in some other industry by the company operating the mine—an appreciable proportion of the whole—is never sold, and the value placed upon it is either an estimate or the figure at which it is carried on the books, either of which is supposedly based on what the coal would have brought if sold or what other fuel for the respective purpose would have cost if its purchase had been necessary. In other words, the values given represent returns to the operators for coal sold, plus estimated exchange value of that not sold. These figures do not necessarily show prices or even an average of the prices of coal at the mine." U. S. Geological Survey (Mineral Resources of the United States, 1917. Part II, p. 952.)

OKLAHOMA
BITUMINOUS COAL FIELDS
AND
PRODUCING DISTRICTS



following table is compiled from statistics appearing in the 1916 and 1917 reports:

TABLE 72.—*Disposition of production and average values, by producing districts and State of Oklahoma, 1916–17.*

District.	Loaded at mines for shipment.				Sold to local trade and used by employees.			
	1916		1917		1916		1917	
	Production.	Average value per ton.	Production.	Average value per ton.	Production.	Average value per ton.	Production.	Average value per ton.
	Tons.		*Tons.*		*Tons.*		*Tons.*	
McAlester Vein [1]	352,598	$2.41	473,751	$3.10	8,237	$2.46	11,829	$3.09
Eastern [2]	3,042,765	2.07	3,678,411	2.80	25,763	2.44	33,663	3.06
State	3,395,363	2.11	4,152,162	2.83	34,000	2.44	45,492	3.07

District.	Used at mines for steam and heat.				Total.			
	1916		1917		1916		1917	
	Production.	Average value per ton.	Production.	Average value per ton.	Production.	Average value per ton.	Production.	Average value per ton.
	Tons.		*Tons.*		*Tons.*		*Tons.*	
McAlester Vein [1]	33,825	$1.58	34,567	$2.29	394,660	$2.34	520,147	$3.05
Eastern [2]	144,823	1.55	154,623	2.34	3,213,351	2.05	3,866,697	2.78
State	178,648	1.56	189,190	2.33	3,608,011	2.09	4,386,844	2.81

[1] McAlester Vein in Pittsburg and Latimer Counties.
[2] LeFlore, Haskell, Okmulgee, Tulsa, Rogers, and Coal Counties, and the Hartshorn-Wilburton vein in Pittsburg and Latimer Counties.

3. *Character of the consumption of Oklahoma coal.*

As is the case in many of the coal fields west of the Middle Atlantic States, a considerable portion of the output of bituminous coal in Oklahoma goes into domestic consumption. The proportion thus used varies from district to district, and is influenced partly by the nature of the coal, partly by the availability of substitutes, and partly by the extent of preparation given the coal for the purpose of adapting it to domestic use.

The exact extent to which the coal from this State enters into domestic use is not definitely ascertainable from any figures at present available. In the 1915 report of the United States Geological Survey [19] some statistics of the distribution of bituminous coal by classes of consumers for Oklahoma are shown. From these the percentages

[19] Mineral Resources of the United States, 1915. Part II, pp. 471–472.

of consumption shown in the following statement have been compiled:

	Per cent.
Railroad	69.7
Gas	.2
Domestic and small steam trade	15.9
Industrial steam trade	7.5
Mine fuels	6.7
Total output, tons	3,693,580

The following statistics of distribution of shipments of bituminous coal, by classes of consignees, October 5, 1918, to February 1, 1919, are taken from an unpublished manuscript of the Geological Survey and are published by permission of that bureau:

	Per cent.
Railroad fuel	45.8
United States Government	.9
State and county institutions	.5
Public utilities, gas and electric	4.3
Retail dealers	15.2
Industries, including iron and steel	33.3
	100.0

This use of coal for domestic consumption introduces, to a greater or less extent, changes in the character of the seasonal demand. In Report No. 2, on Pennsylvania anthracite, the Commission pointed out the wide differences between the character of the demand for coal for domestic consumption and the demand for industrial use. If the coal is of a nature which can be stored without undue fire risk, and if the domestic consumer can be induced to buy his coal during the summer, the domestic demand has a less seasonal character than where such conditions do not exist. Despite the marked seasonal fluctuations the annual domestic demand is likely to be a fairly constant quantity from year to year. On the other hand, the industrial demand for coal, while not always subject to such extreme seasonal fluctuations as that of coal for domestic use, is likely to vary to a much greater extent from year to year, influenced as it is primarily by periods of industrial prosperity or depression.

Part II. 1918 costs and sales realizations.

1. Number and extent of operations covered.

The 1918 production of the 63 operators in Oklahoma from whom cost reports were obtained by the Commission, was as follows:

	Tons.	Per cent.
McAlester Vein district:		
8 operators from whom costs were obtained for 12 months	743,294	97.0
1 operator from whom costs were obtained for less than the full 12 months (actual tonnage reported 13,498 tons), estimated yearly tonnage	23,136	3.0
Total	766,430	100.0
Eastern district:		
35 operators from whom costs were obtained for 12 months	3,477,062	85.6
2 operators from whom costs were obtained for 12 months, but which were excluded for certain reasons	31,825	.8
17 operators from whom costs were obtained for less than the full 12 months (actual tonnage reported 322,115 tons) estimated yearly tonnage	552,816	13.6
Total	4,061,703	100.0
State:		
43 operators from whom costs were obtained for 12 months	4,220,356	87.4
2 operators from whom costs were obtained for 12 months, but which were excluded for certain reasons	31,825	.7
18 operators from whom costs were obtained for less than the full 12 months (actual tonnage reported 335,613 tons) estimated yearly tonnage	575,952	11.9
Total	4,828,133	100.0

The above figures are shown *inclusive* of power-house fuel, for comparison with the United States Geological Survey statistics. The total output of the 43 operators from whom costs were obtained for 12 months was, *exclusive* of power-house fuel, 4,027,096 tons.

According to statistics issued by the Geological Survey the output of Oklahoma during 1918 was 4,813,447 tons, of which 207,917 tons were used at the mine for steam and heat. The Commission obtained cost information on 4,587,794 tons produced in 1918 (including power-house fuel), forming 95 per cent of the total as reported by the Survey. It publishes in this report cost information on 4,027,096 tons of commercial production, which is 87 per cent of the output reported by the Survey, after the exclusion of mine fuel.

2. Classification of producers by number of mines operated.

The cost of the 43 operators shown in the tabulation for Oklahoma covers the output of 81 mines. The following table shows the number of mines operated by the different producers:

TABLE 73.—*Number of mines operated by different producers in Oklahoma.*

Number of mines run by each operator.	Number of operators.	Proportion of total number.	Production tonnage, 1918.	Proportion of total production.
McAlester Vein district;		*Per cent.*	*Tons.*	*Per cent.*
1 mine	2	25.0	102,447	14.9
2 mines	3	37.5	221,649	32.1
3 mines	3	37.5	364,890	53.0
Total (number of mines, 17)	8	100.0	688,986	100.0
Eastern district:				
1 mine	21	60.0	1,106,042	33.1
2 mines	7	20.0	635,703	19.1
3 mines	2	5.7	554,271	16.6
4 mines	4	11.4	848,441	25.4
7 mines	1	2.9	193,653	5.8
Total (number of mines, 64)	35	100.0	3,338,110	100.0
State:				
1 mine	23	53.5	1,208,489	30.0
2 mines	10	23.3	857,352	21.3
3 mines	5	11.7	919,161	22.8
4 mines	4	9.1	848,441	21.1
7 mines	1	2.4	193,653	4.8
Total (number of mines, 81)	43	100.0	4,027,096	100.0

It will be seen that in the State 23 producers (53.5 per cent of the total number shown in the table) operated only one mine each and produced 30 per cent of the output. The following statement shows the average number of mines operated by a producer, and the average production per mine operated by one-mine operators and by operators of two or more mines, for each district and for the State of Oklahoma:

District.	Average number of mines operated by a producer.	Average production per mine operated by—		
		One-mine operators.	Operators of two or more mines.	All operators combined.
	Mines.	*Tons.*	*Tons.*	*Tons.*
McAlester Vein	2.1	51,224	39,103	40,529
Eastern	1.8	52,669	51,908	52,158
State	1.9	52,543	48,596	49,717

The number and size of mines in Oklahoma are shown in further detail in the report for 1917 of the United States Geological Survey, from which the following statistics are derived.[20]

[20] Mineral resources of the United States, 1917. Part II, pp. 947-948.

Annual output of mines.	Mines.		Tonnage.	
	Number.	Proportion of total in State.	Average production per mine.	Proportion of total State output.
		Per cent.	*Tons.*	*Per cent.*
200,000 tons and over	2	1.3	206,224	9.4
100,000 to 199,999 tons	8	5.4	123,250	22.5
50,000 to 99,999 tons	18	12.1	75,959	31.2
10,000 to 49,999 tons	59	39.6	25,517	34.3
Under 10,000 tons	62	41.6	1,865	2.6
State	149	100.0	29,442	100.0

3. Classification of producers by size of output.

The 43 producers tabulated are classified by size of their output in 1918, exclusive of power-house fuel, as follows:

TABLE 74.—*Classification of 43 Oklahoma operators by size of output.*

Production during 1918.	Number of operators.	Proportion of total number.	Production, 1918.	Proportion of total production.
McAlester Vein district:		*Per cent.*	*Tons.*	*Per cent.*
Under 50,000 tons	2	25.0	39,636	5.8
50,000 to 99,999 tons	3	37.5	230,154	33.4
100,000 to 499,999 tons	3	37.5	419,196	60.8
Total	8	100.0	688,986	100.0
Eastern district:				
Under 50,000 tons	11	31.4	360,936	10.8
50,000 to 99,999 tons	15	42.9	1,040,217	31.2
100,000 to 499,999 tons	9	25.7	1,936,957	58.0
Total	35	100.0	3,338,110	100.0
State:				
Under 50,000 tons	13	30.2	400,572	10.0
50,000 to 99,999 tons	18	41.9	1,270,371	31.5
100,000 to 499,999 tons	12	27.9	2,356,153	58.5
Total	43	100.0	4,027,096	100.0

If the 18 operators from whom cost reports were received for less than the full 12 months during 1918, and the two operators from whom reports were obtained but in unusable form, be considered, it will be found that one of these operators had an estimated annual production of about 130,000 tons and three other operators had an average estimated production of over 53,000 tons. The remaining 16 operators had an average estimated annual production of 19,092

tons. Had reports for the full 12 months' period been available from them it would be found that about 46 per cent of the operators produced about 16 per cent of the output.

4. The 1918 costs and sales realizations shown by districts.

There was no change in the official wage scale for bituminous coal miners in Oklahoma during 1918. Therefore the labor costs per ton for the period were principally affected by changes in the production tonnage and not by changes in the rate of wages paid labor. The effect of decreased production in increasing labor costs can be clearly seen on Diagrams VII and VIII (opposite) and Charts 15 and 16 (opposite p. 152).

Tables 37 to 46 in the Appendix to this report (see pp. 391–401) show the costs and the sales realizations arranged from low to high in 10-cent groupings for each period shown. Throughout the tables for a given district the costs are shown for the same operators, but the costs of any given operator do not necessarily hold the same relative position in the 10-cent groups for each period. The shift of any operator in his relative position, from period to period, is generally slight.

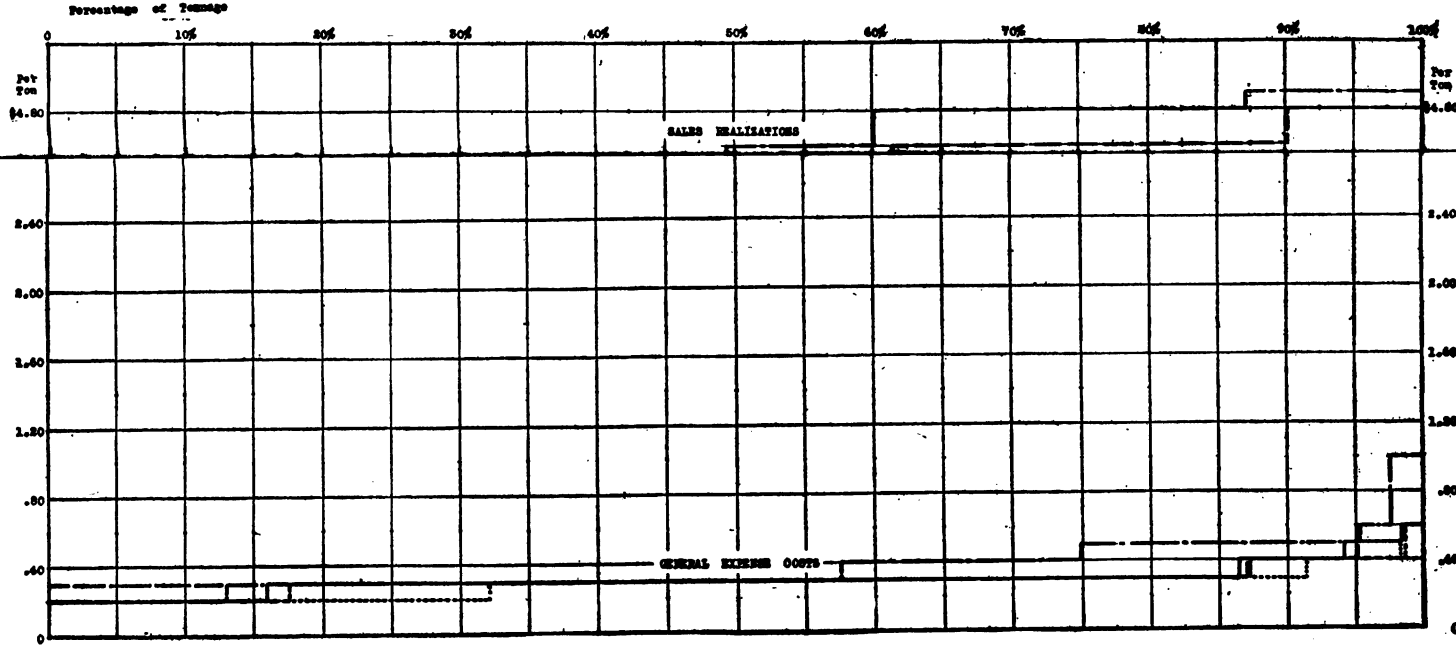
The tables show, for each quarter and for the year as a whole, by 10-cent groupings, the tonnage produced at that cost, its per cent of the total production, the place of the group in the accumulated percentage, and the number of operators whose costs fell within each 10-cent group.

A summary of the significant facts brought out in Appendix Tables 37 to 46 appears in the following tables, in which are compared the true average cost and sales realization, the range of 90 per cent of the output which had the lowest costs and sales realizations and the extreme range for the entire output of 43 operators:

BITUMINOUS COAL—OKLAHOMA

DIAGRAM VII

McAlester Vein District



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[illegible] and yearly revised costs and sales realization for 8 operators in McAlester Vein district of the State of Oklahoma, showing [illegible]

BITUMINOUS COAL—OKLAHOMA.

DIAGRAM VIII

Eastern District

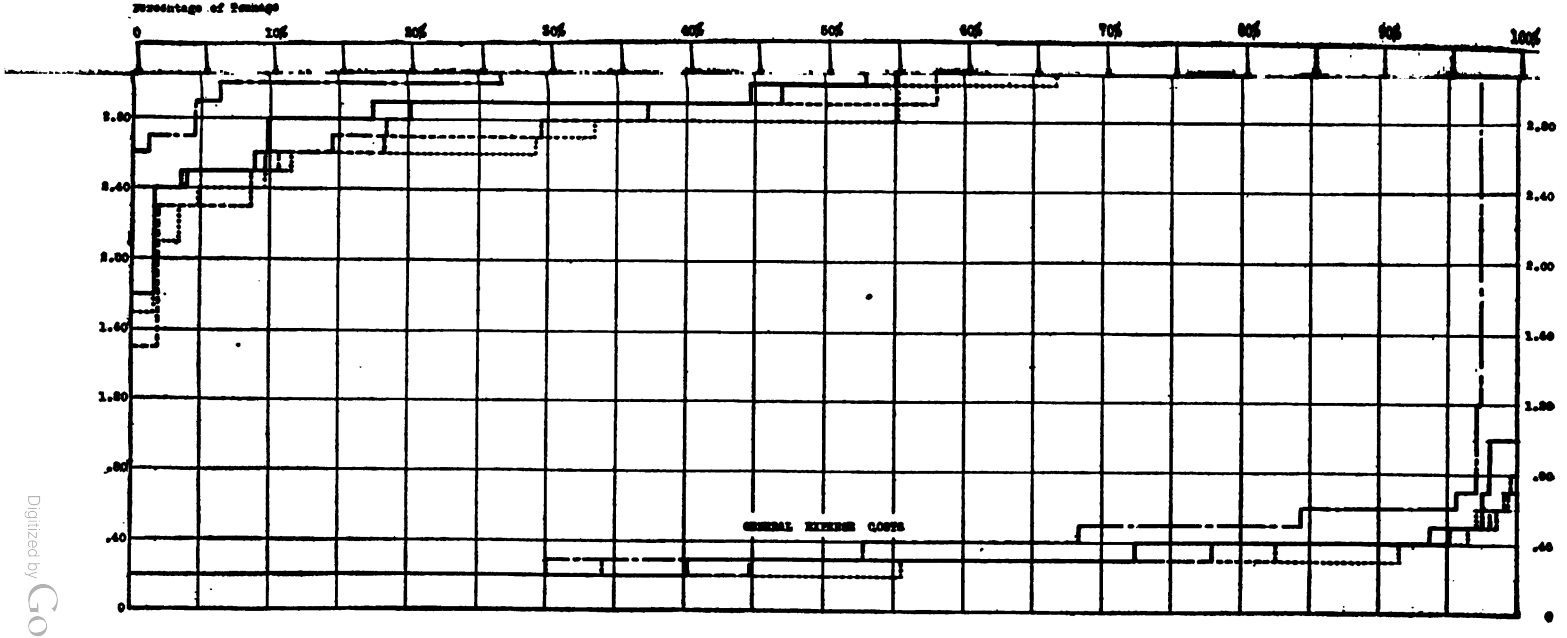


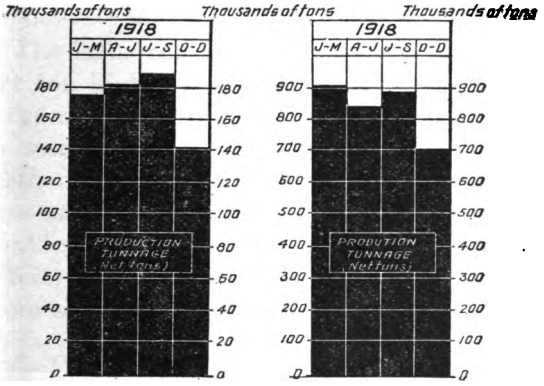
TABLE 76.—*1918 quarterly and yearly revised costs and sales realization for 35 operators in Eastern district of the State of Oklahoma, showing averages and range for 90 per cent and for 100 per cent of total output.*

Period.	Costs per net ton.												Sales realization per net ton.		
	Labor.			Supplies.			General expense.			Total f. o. b. mine.					
	Average.	Range.		Average.	Range.		Average.	Range.		Average.	Range.		Average.	Range.	
		90 per cent output.	100 per cent output.		90 per cent output.	100 per cent output.		90 per cent output.	100 per cent output.		90 per cent output.	100 per cent output.		90 per cent output.	100 per cent output.
January-March	$2.41	$1.21-$2.95	$1.21-$3.66	$0.23	$0.00-$0.33	$0.00-$1.08	$0.30	$0.21-$0.38	$0.21-$0.71	$2.94	$1.74-$3.40	$1.74-$4.40	$3.37	$2.60-$4.06	$2.60-$4.51
April-June	2.42	1.04- 2.78	1.04- 4.13	.26	.00- .38	.00- .92	.33	.22- .41	.22- .82	3.01	1.54- 3.38	1.54- 5.43	3.24	2.56- 3.69	2.56- 4.11
July-September	2.48	1.30- 2.99	1.30- 3.43	.28	.00- .36	.00- 1.05	.33	.23- .45	.23- .71	3.09	1.82- 3.61	1.82- 4.02	3.70	2.86- 3.95	2.86- 4.28
October-December	2.65	1.37- 3.30	1.37- 3.57	.33	.00- .47	.00- 1.04	.47	.20- .60	.20- 3.20	3.45	2.64- 4.11	2.64- 5.39	3.87	2.61- 4.06	2.61- 5.25
Year	2.48	1.21-2.95	1.21- 3.50	.28	.00- .37	.00- .74	.35	.23- .47	.23- 1.07	3.11	1.85- 3.55	1.85- 4.26	3.53	2.97- 3.95	2.97- 4.41

BITUMINOUS COAL – OKLAHOMA

CHART 15. – *Production tonnage, by quarters for 1918, of 43 Operators by producing Districts in Oklahoma.*

CHART 17. – *Distribution of Amount paid by purchaser between the various principal Costs and the Margin, based on each dollar of Sales Realization, by quarters in 1918, in Oklahoma.*



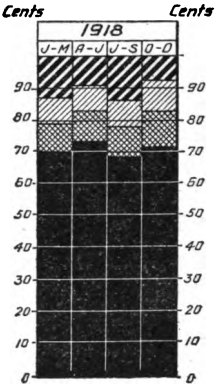
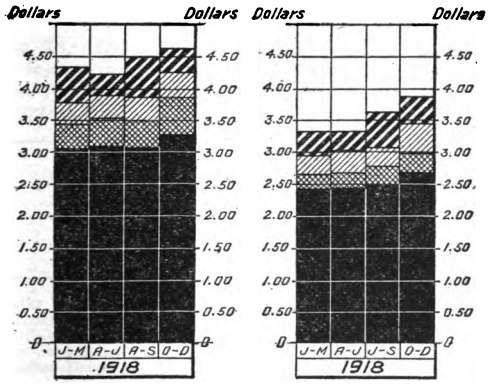
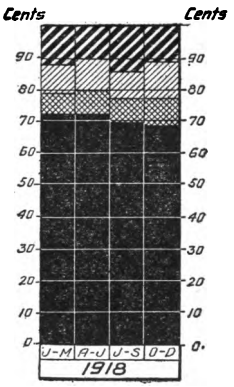


CHART 16. – *Average Costs and Sales Realizations per ton, by quarters for 1918, of 43 Operators by producing Districts in Oklahoma.*





Labor ■ Supplies ▒ Gen'l Expenses ▨ Margin ▨

The following table of yearly averages is given for the sake of ready comparison of the two districts:

TABLE 77.—*Average costs and sales realizations of the two Oklahoma districts for the year 1918.*

District.	Production.	Cost per ton				Sales realization per ton.	Margin per ton.
		Labor.	Supplies.	General expense.	Total f. o. b. mine.		
	Tons.						
McAlester Vein	688,986	$3.11	$0.45	$0.36	$3.92	$4.42	$0.50
Eastern	3,338,110	2.49	.27	.35	3.11	3.53	.42

The labor cost of the McAlester Vein district was about 60 cents per ton higher than that of the Eastern district. This is due in a large degree to the difference in the thickness of seams mined, and to some extent also is attributable to differences in the mining methods followed. As will be noted from the tabulation of thickness of seam (see Table 80, p. 156) 20 per cent of the output of the McAlester Vein district came from seams which averaged less than 3 feet thick, while in the Eastern district the proportion of output from seams averaging under 3 feet thick was but 11 per cent.

5. *Relation of the costs to the sales realizations.*

The following table shows the distribution, by quarters and for the year 1918, between the items of labor, supplies, general expense, and margin of each dollar of sales realization received by the operator:

TABLE 78.—*Distribution of the amount paid by the purchaser between the various principal costs and the margin, based on each dollar of sales realization, for the McAlester Vein and the Eastern districts in Oklahoma, 1918, by quarters and for the year.*

Period.	Costs.				Margin.
	Labor.	Supplies.	General expense.	Total f. o. b. mine.	
McAlester Vein district:	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*
January–March	70	9	8	87	13
April–June	74	11	8	93	7
July–September	67	10	8	85	15
October–December	71	12	9	92	8
Year	71	10	8	89	11
Eastern district:					
January–March	71	7	9	87	13
April–June	75	8	10	93	7
July–September	67	8	9	84	16
October–December	68	9	12	89	11
Year	71	7	10	88	12

These facts are shown in graphic form in Chart 17 (facing p. 152).

6. Comparison of claimed and revised costs.

The foregoing tables present costs which have in some cases been revised by the accountants of the commission from the claimed figures reported on the original schedules by the operators. Tables 47 and 48 in the appendix to this report show the claimed 1918 costs, compiled in all cases from the figures submitted by the operators.

The changes brought about through the revision in the average costs for the year 1918 for the 43 operators were as follows:

Item.	Claimed costs.	Revised costs.	Increase (I) or decrease (D) due to revision.
McAlester Vein district:			
Production (tons)	743,294	688,986	[1] 54,308 (D)
Labor ... per ton	$2.88	$3.11	$0.23 (I)
Supplies ... do	.66	.45	.21 (D)
General expense ... do	.49	.36	.13 (D)
Total f. o. b. mine ... do	4.03	3.92	.11 (D)
Eastern district:			
Production (tons)	3,477,062	3,338,110	[1] 138,952 (D)
Labor ... per ton	$2.39	$2.49	$0.10 (I)
Supplies ... do	.39	.27	.12 (D)
General expense ... do	.41	.35	.06 (D)
Total f. o. b. mine ... do	3.19	3.11	.08 (D)
State:			
Production (tons)	4,220,356	4,027,096	[1] 193,260 (D)
Labor ... per ton	$2.48	$2.59	$0.11 (I)
Supplies ... do	.44	.30	.14 (D)
General expense ... do	.42	.36	.06 (D)
Total f. o. b. mine ... do	3.34	3.25	.09 (D)

[1] Due to exclusion of power-house fuel.

The increase of 11 cents in the average State revised labor cost over the claimed is caused by the use of the revised production tonnage as a divisor. The total claimed labor cost was $10,446,650, and the total revised labor cost was $10,436,359. The downward revision was principally due to the exclusion of contingent expenses and the transfer to other headings of items which had been charged under labor.

The costs claimed by some operators in Oklahoma were obviously open to question as to their accuracy. Such operators were required by the commission to furnish furthed detailed information in support of their claimed costs. The examination of such detailed information revealed the fact that they had sometimes included charges for maintenance and contingent reserves, etc. In some cases the costs had been inflated by the inclusion of items which should have been charged to capital accounts, by officers' salaries greatly in excess of those paid in neighboring operations of similar size, and by excessive charges for depletion and depreciation, which had not been computed in accordance with the instructions of the commission.

Under the head of general expense the chief instances of revision affected two operators and involved about 5 per cent of the total tonnage of the State.

7. 1918 costs shown by thickness of seam.

About 70 per cent of the output of Oklahoma came from 20 producers who operated more than one mine. Most of these producers did not report the costs of each mine separately. In order to include them in a tabulation to show costs by thickness of seam it was necessary to use the average of the seams mined by them. This has led to the inclusion of data in the tabulation for the 43 operators, which to a slight extent vitiates its scientific value, since it is not known whether equal tonnage was derived from mines which had seams above or below the average thickness. The tabulation by thickness of seam for the 43 operators follows:

TABLE 79.—*Seam tabulation of revised costs for 43 operators in Oklahoma.*

Thickness of seam.	Number of operators.	Production, 1918.	Costs per ton.			
			Labor.	Supplies.	General expense.	Total f. o. b. mine.
McAlester Vein district:		*Tons.*				
24 to 35 inches	2	139,322	$2.85	$0.37	$0.37	$3.59
36 to 47 inches	2	163,630	3.45	.49	.34	4.28
48 to 59 inches	4	386,034	3.06	.47	.35	3.88
Total	8	688,986	3.11	.45	.36	3.92
Eastern district:						
24 to 35 inches	5	352,995	2.50	.26	.48	3.24
36 to 47 inches	17	1,227,951	2.31	.25	.37	2.93
48 to 59 inches	10	1,382,705	2.57	.31	.30	3.18
60 to 71 inches [1]	3	374,459	2.72	.20	.37	3.29
Total	35	3,338,110	2.49	.27	.35	3.11
State:						
24 to 35 inches	7	492,317	2.60	.29	.45	3.34
36 to 47 inches	19	1,391,581	2.44	.28	.37	3.09
48 to 59 inches	14	1,768,739	2.68	.34	.31	3.33
60 to 71 inches [1]	3	374,459	2.72	.20	.37	3.29
Total	43	4,027,096	2.59	.30	.36	3.25

[1] Includes 1 operator with a 75-inch seam.

In order to eliminate the effect of the inclusion of average thicknesses, where producers operated two or more mines, a seam tabulation has been made of the 23 one-mine operators. It will be noted from the following table that the tonnage of the 23 one-mine operators was somewhat less regularly distributed among the different thicknesses of seam than was the case with the 43 operators.

TABLE 80.—*Distribution, between seams, of output of 43 operators and 23 one-mine operators in Oklahoma.*

Thickness of seam.	8 operators, producing 688,986 tons in 1918.		2 operators, producing 102,447 tons in 1918.	
	Number of operators.	Per cent of output.	Number of operators.	Per cent of output.
McAlester Vein district:				
24 to 35 inches	2	20.2	1	11.4
36 to 47 inches	2	23.8	.....	.....
48 to 59 inches	4	56.0	1	88.6
Total	8	100.0	2	100.0
	35 operators, producing 3,338,110 tons in 1918.		21 operators, producing 1,106,042 tons in 1918.	
Eastern district:				
24 to 35 inches	5	11.2	3	19.0
36 to 47 inches	17	33.0	13	55.0
48 to 59 inches	10	43.9	5	26.0
60 to 71 inches [1]	3	11.9	.....	.....
Total	35	100.0	21	100.0
	43 operators, producing 4,027,096 tons in 1918.		23 operators, producing 1,211,822 tons in 1918.	
State:				
24 to 35 inches	7	12.2	4	18.3
36 to 47 inches	19	34.6	13	50.4
48 to 59 inches	14	43.9	6	31.3
60 to 71 inches [1]	3	9.3	.....	.....
Total	43	100.0	23	100.0

[1] Includes 1 operator with 75-inch seam.

The tabulation of cost, by thickness of seam, for the 23 one-mine operators follows:

TABLE 81.—*Seam tabulation of revised costs for 23 one-mine operators in Oklahoma.*

Thickness of seam.	Number of operators.	Production, 1918.	Costs per ton.			
			Labor.	Supplies.	General expense.	Total f. o. b. mine.
McAlester Vein district:		*Tons.*				
24 to 35 inches	1	11,678	(1)	(1)	(1)	(1)
36 to 47 inches	.....	.....	.....	.....	.....	.....
48 to 59 inches	1	90,769	(1)	(1)	(1)	(1)
Total	2	102,447	$3.03	$0.45	$0.39	$3.87
Eastern district:						
24 to 35 inches	3	210,590	2.60	.14	.58	3.32
36 to 47 inches	13	607,553	2.26	.30	.37	2.93
48 to 59 inches	5	287,899	2.51	.31	.44	3.26
Total	21	1,106,042	2.39	.27	.43	3.09
State:						
24 to 35 inches	4	222,268	2.60	.15	.58	3.33
36 to 47 inches	13	607,553	2.26	.30	.37	2.93
48 to 59 inches	6	378,668	2.65	.35	.42	3.42
Total	23	1,208,489	2.44	.29	.42	3.15

[1] To avoid identification of the costs of these two operators, only the combined figures for the district are shown. The costs are included in the summary for the State.

A summary of the principal facts relating to labor, supplies, and total f. o. b. mine cost of the 23 one-mine operators, arranged in comparative form for the districts and the State, is shown below:

Thickness of seam.	McAlester Vein district.			Eastern district.			State.		
	Labor.	Supplies.	Total f. o. b. mine cost.	Labor.	Supplies.	Total f. o. b. mine cost.	Labor.	Supplies.	Total f. o. b. mine cost.
24 to 35 inches	$2.66	$0.20	$3.50	$2.60	$0.14	$3.32	$2.60	$0.15	$3.33
36 to 47 inches	.....	.....	.....	2.26	.30	2.93	2.26	.30	2.93
48 to 59 inches	3.08	.49	3.92	2.51	.31	3.26	2.65	.35	3.42
Total	3.03	.45	3.87	2.39	.27	3.09	2.44	.29	3.15

In the above figures for the Oklahoma output there is no such close correlation shown between the decrease in labor costs with increase in thickness of seam mined as has been found to exist generally in the various producing districts of other States. The diversity of mining conditions between operators in the same district has obscured the effect of thickness of seam. A similar instance of this kind was pointed out in the case of the Alabama districts.[21] The available definite information about the character of the mines, of the kind obtained from the State reports of Iowa and Kansas (see pp. 51 and 81), permits no such analysis to show the nature of the diverse mining conditions.

General expense is less affected than labor cost by conditions of a physical nature, like thickness of seam, but is closely connected with the commercial and financial economies of operation. The following comparison of the 23 one-mine operators with the 20 operators of two or more mines is of interest:

TABLE 82.—*Comparison of average revised costs: Operators of one mine with operators of two or more mines in Oklahoma.*

District.	Number of operators.	Number of mines.	Output, 1918.			Costs per ton.			
			Total output.	Output per operator.	Output per mine.	Labor.	Supplies.	General expense.	Total f. o. b. mine.
			Tons.	Tons.	Tons.				
McAlester Vein:									
1 mine	2	2	102,447	51,224	51,224	$3.03	$0.45	$0.39	$3.87
2 or more mines	6	15	586,539	97,757	39,103	3.12	.45	.35	3.92
Total	8	17	688,986	86,123	40,529	3.11	.45	.36	3.92
Eastern:									
1 mine	21	21	1,106,042	52,669	52,669	2.39	.27	.43	3.09
2 or more mines	14	43	2,232,068	159,433	51,908	2.53	.27	.32	3.12
Total	35	64	3,338,110	95,375	52,158	2.49	.27	.35	3.11
State:									
1 mine	23	23	1,208,489	52,543	52,543	2.44	.29	.42	3.15
2 or more mines	20	58	2,818,607	140,930	48,596	2.66	.31	.32	3.29
Total	43	81	4,027,096	93,653	49,717	2.59	.30	.35	3.24

[21] Report No. 4, Alabama, Tennessee, and Kentucky bituminous coal, p. 42.

In both districts and for the State, the general expense costs of the operators of two or more mines were lower than those of the one-mine operators.

Part III. Comparative costs and sales realizations for 1916, 1917, and 1918.

The commission obtained for the year 1916, and by months for 1917 and 1918, the costs and sales realizations of 15 operators. They mined about 1,800,000 tons annually. That part of the information which deals with the period prior to August, 1917, was filed by the operators on cost sheets in the form prescribed by the commission in support of petitions to the Fuel Administration for revision of prices fixed for their fields. The information from August, 1917, to December, 1918, was reported by the operators directly to the commission.

1. Representativeness of statistics presented.

In order that the costs and sales realizations of these 15 operators should be accepted as typical of the districts in which they mine, they must be shown to be of a fairly representative character. The following statement shows the proportion of the tonnage mined by these operators to the total commercial tonnage as derived from reports of the United States Geological Survey for 1916 and 1917, and the proportion mined by them to total tonnage tabulated by the commission for 1918:

District.	Number of operators.	Proportion of commercial tonnage reported by United States Geological Survey.		Proportion of tonnage reported by Federal Trade Commission.
		1916	1917	1918
		Per cent.	*Per cent.*	*Per cent.*
McAlester Vein	6	104.6	108.1	86.0
Eastern	9	32.8	30.7	39.1

In respect to the quantity produced, the operators shown in the 1916–1918 tabulations in both districts produced a substantial proportion of the total output, and in that respect can be considered representative.

The representativeness of the sales realizations in 1916 and 1917 of the 15 operators may be judged by comparison with the "average value per ton" figures derived for the districts from the Geological Survey reports for 1916 and 1917 by using value of tonnage "loaded

at the mine for shipment" and "sold to local trade and used by employees":

District.	1916		1917	
	United States Geological Survey, average value.	Federal Trade Commission, sales realization.	United States Geological Survey, average value.	Federal Trade Commission, sales realization.
McAlester Vein	$2.41	$2.93	$3.10	$3.60
Eastern	2.08	2.11	2.80	2.60

A comparison of the average total f. o. b. mine cost and the average sales realizations of 46 operators in the McAlester Vein and Eastern districts of Oklahoma with those of the 15 operators, follows:

District.	August-October, 1917.		November, 1917.		December, 1917.	
	Total f. o. b. mine cost.	Sales realization.	Total f. o. b. mine cost.	Sales realization.	Total f. o. b. mine cost.	Sales realization.
McAlester Vein:						
8 operators	$3.27	$3.36	$3.67	$3.85	$3.69	$4.12
6 operators	3.22	3.36	3.69	3.85	3.65	4.08
Eastern:						
38 operators	2.53	2.77	3.01	3.23	3.06	3.43
9 operators	2.63	2.62	3.33	3.02	3.41	3.36

The representativeness of the costs and sales realizations of the 15 operators in 1918 is shown by the comparisons in the two following tables between their average figures and those of the 43 operators in the two districts who produced 4,027,096 tons in 1918:

TABLE 83.—*Comparison of average revised costs and sales realizations per ton for 1918 of eight operators with those of six operators in McAlester Vein district of Oklahoma.*

Item.	January-March.		April-June.		July-September.		October-December.		Year.	
	8 operators.	6 operators.	8 operators.	6 operators.	8 operators.	6 operators.	8 operators.	6 operators.	8 operators.	6 operators.
Labor ... per ton	$3.06	$3.09	$3.08	$3.07	$3.05	$3.02	$3.28	$3.28	$3.11	$3.10
Supplies ... do	.38	.42	.44	.48	.45	.47	.57	.55	.45	.48
General expense ... do	.33	.33	.34	.34	.35	.34	.41	.39	.36	.35
Total f. o. b. mine cost per ton	3.77	3.84	3.86	3.89	3.85	3.83	4.26	4.22	3.92	3.93
Sales realization per ton	4.35	4.37	4.17	4.16	4.54	4.51	4.64	4.64	4.42	4.41

TABLE 84.—*Comparison of average revised costs and sales realizations per ton for 1918 of 35 operators with those of nine operators in the Eastern district of Oklahoma.*

Item.	January-March.		April-June.		July-September.		October-December.		Year.	
	35 operators.	9 operators.	35 operators.	9 operators.	35 operators.	9 operators.	35 operators.	9 operators.	35 operators.	9 operators.
Labor.....per ton..	$2.41	$2.54	$2.42	$2.54	$2.48	$2.61	$2.65	$2.77	$2.49	$2.60
Supplies.....do....	.23	.20	.26	.25	.28	.28	.33	.30	.27	.26
General expense.....do....	.30	.28	.33	.30	.33	.29	.47	.33	.35	.30
Total f. o. b. mine cost per ton.....	2.94	3.02	3.01	3.09	3.09	3.18	3.45	3.40	3.11	3.16
Sales realization per ton.....	3.37	3.51	3.24	3.14	3.70	3.73	3.87	3.92	3.55	3.56

From the foregoing comparisons covering August, 1917–December, 1918, it will be seen that both the costs and sales realizations, and consequently the margins, of the six operators in the McAlester Vein district corresponded closely with those of the eight operators. Therefore, the figures for the six operators can be accepted as typical and representative of the district. In the case of the Eastern district, the costs of the nine operators averaged about 18 cents per ton higher than those of the 38 operators during August–December, 1917, while the sales realizations of the nine operators averaged about 22 cents lower than those of the 38 operators during August–December, 1917, and about 1 cent higher than those of the 35 operators during 1918. As a result the margins of the nine operators were about 40 cents below the average of the district during August–December, 1917, and about 4 cents below during 1918. Although not typical at every period the figures for the nine operators can be accepted as representative of the general changes in costs and sales realizations from time to time.

2. The revised costs, sales realizations, and production figures and analyses of the fluctuations, 1916–1918.

The revised costs and the sales realizations of the operators combined are shown in this section for different periods. The difference between the revised and claimed costs is so immaterial that only revised costs are shown. In the upper division of Tables 87 and 89 are shown the costs and sales realizations for the year 1916 and for each month of 1917 and 1918. In the second division these costs and sales realizations are shown for periods of varying length, which correspond to the duration of certain conditions which had great influence on the costs and the sales realizations. In the third division of the tables are shown the figures by calendar years.

In Table 85 the distribution of the total f. o. b. mine costs and sales realizations, and in Table 86 the amounts by which the f. o. b. mine

costs exceeded or were exceeded by the sales realizations, are shown for the year 1916 for the two districts.

TABLE 85.—*Distribution of total f. o. b. mine costs and sales realizations per ton of 14*[1] *operators in Oklahoma for the year 1916.*

10-cent groupings per ton.	McAlester vein district.		Eastern district.	
	Total f. o. b. mine cost.	Sales realization.	Total f. o. b. mine cost.	Sales realization.
	Per cent.	*Per cent.*	*Per cent.*	*Per cent.*
$1.50–$1.59		10.2		
$1.60–$1.69	10.2			
$1.70–$1.79				
$1.80–$1.89				50.5
$1.90–$1.99			57.5	
$2.00–$2.09			9.8	
$2.10–$2.19			10.4	
$2.20–$2.29			2.6	23.6
$2.30–$2.39				9.2
$2.40–$2.49			2.0	
$2.50–$2.59			5.7	14.4
$2.60–$2.69			12.0	
$2.70–$2.79	33.6			
$2.80–$2.89	48.9	14.7		2.3
$2.90–$2.99				
$3.00–$3.09		24.8		
$3.10–$3.19	7.3	26.9		
$3.20–$3.29		23.4		
Total	100.0	100.0	100.0	100.0

[1] One operator in the Eastern district reported no realization figures for 1916.

TABLE 86.—*Distribution of the amounts per ton by which the total f. o. b. mine costs exceeded or were exceeded by the sales realizations of 14*[1] *operators in Oklahoma for the year 1916.*

5-cent groupings per ton.	McAlester Vein district, proportion of output.	Eastern district, proportion of output.
Total f. o. b. mine cost exceeded sales realizations by—	*Per cent.*	*Per cent.*
25 cents or more		
20–24 cents		6.4
15–19 cents		13.2
10–14 cents	10.2	50.5
5–9 cents	7.2	
0–4 cents		
Total	17.4	70.1
Sales realizations exceeded total f. o. b. mine cost by—		
0–4 cents		
5–9 cents		2.8
10–14 cents	14.7	10.8
15–19 cents	24.8	
20–24 cents		
25 cents or more	43.1	16.3
Total	82.6	29.9
Grand total	100.0	100.0

[1] One operator in the Eastern district reported no realization figures for 1916.

M'ALESTER VEIN DISTRICT.

The significance of the 12 periods selected for presenting the figures for 1916–1918 for the McAlester Vein district is as follows:

Year 1916.—This period reflects the situation for the calendar year prior to the entrance of the United States into the war. Only the figures for 1916 as a whole were obtained for the McAlester Vein district of Oklahoma.

January–March, 1917.—During this period the 1916 wage scale was still in operation and much coal was being sold on contracts based on that wage scale. The imminence of war affected prices more than costs.

April–August, 1917.—War was begun. A new wage scale went into operation about May 1, 1917. The contracts for the sale of coal entered into were generally at much higher prices than previous contracts, while the spot market advanced.

September, 1917.—This period directly followed the fixing, by Executive order of August 21, 1917, of maximum prices for bituminous coal not sold under contracts made prior to that date and the establishment of a Fuel Administration to regulate the fuel situation. The 1917 wage scale continued in operation during this month.

October, 1917.—This period followed the change in maximum prices, effective October 1, 1917, made by the Fuel Administration in the maximum prices established for this district.

November, 1917.—Effective November 1, 1917, a 45-cent increase in maximum prices was allowed by Executive order in consequence of the adoption of a new wage scale (1917–18) which was higher than that adopted earlier in 1917. This advance was conditioned on certain agreements being made between the operators and the miners. In Oklahoma there was some delay in meeting the conditions.

December, 1917–March, 1918.—Effective November 30, 1917, the Fuel Administration made a conditional increase of 25 cents per ton. This period followed the increase in maximum prices due to the wage increase. Many of the contracts made prior to August 21, 1917, continued through this period.

April, 1918.—This period directly followed the change in maximum prices effective March 29, 1918, made by the Fuel Administration, which established maximum base prices for this district. During April the base prices on a part of the output sold were subject to a summer reduction of 60 cents per ton from the base.

May, 1918.—During May the base prices effective March 29, 1918, were subject, on a part of the output sold, to a summer reduction of 45 cents per ton from the base. Effective May 25, 1918, the Fuel Administration made a reduction of 10 cents per ton in the existing maximum prices for the district.

June, 1918.—During June the base prices effective March 29, 1918, and modified by the Fuel Administration's order of May 25, 1918, were subject, on a part of the output sold, to a summer reduction of 30 cents per ton from the base.

July, 1918.—During July the base prices effective March 29, 1918, and modified by the Fuel Administration's order of May 25, 1918, were subject, on a part of the output sold, to a summer reduction of 15 cents per ton from the base.

August–December, 1918.—Throughout this period the base prices effective March 29, 1918, and modified by the Fuel Administration's order of May 25, 1918, were in effect.

TABLE 87.—*Revised costs and sales realizations of six operators mining about 550,000 tons annually in the McAlester Vein district of Oklahoma, 1916–1918.*

Period.	Production.	Costs per ton.				Sales realization per ton.	Margin per ton (realization over f.o.b. mine cost).
		Labor.	Supplies.	General expense.	Total f. o. b. mine.		
	Tons.						
Year 1916	377,349	$2.03	$0.26	$0.43	$2.72	$2.93	$0.21
1917.							
January	63,415	1.94	.17	.32	2.43	3.93	1.50
February	29,313	2.37	.27	.45	3.09	3.31	.22
March	12,248	2.78	.45	.69	3.92	2.50	[1] 1.42
April	36,258	2.16	.24	.37	2.77	2.96	.19
May	54,769	2.26	.24	.33	2.83	3.53	.70
June	48,316	2.31	.21	.40	2.92	3.77	.85
July	45,042	2.48	.30	.38	3.16	3.99	.83
August	44,375	2.61	.26	.43	3.30	3.78	.48
September	45,783	2.52	.26	.42	3.20	2.86	[1] .34
October	46,318	2.45	.35	.37	3.17	3.44	.27
November	49,474	2.96	.35	.38	3.69	3.85	.16
December	49,697	2.90	.35	.40	3.65	4.08	.43
1918.							
January	52,863	3.04	.29	.32	3.65	4.42	.77
February	54,603	2.94	.46	.33	3.73	4.42	.69
March	38,027	3.38	.53	.36	4.27	4.23	[1] .04
April	51,117	3.03	.48	.33	3.84	4.25	.41
May	55,826	3.10	.39	.34	3.83	4.16	.33
June	49,490	3.09	.59	.34	4.02	4.24	.22
July	58,970	2.92	.44	.31	3.67	4.38	.71
August	58,464	2.99	.47	.33	3.79	4.52	.73
September	49,340	3.16	.51	.38	4.05	4.50	.45
October	42,321	3.27	.56	.36	4.19	4.66	.47
November	46,660	3.22	.52	.36	4.10	4.70	.60
December	34,904	3.37	.59	.46	4.42	4.54	.12
Year 1916	377,349	2.03	.26	.43	2.72	2.93	.21
January–March, 1917	104,976	2.16	.23	.40	2.79	3.60	.81
April–August, 1917	228,760	2.36	.25	.38	2.99	3.62	.63
September, 1917	45,783	2.52	.26	.42	3.20	2.86	[1] .34
October, 1917	46,318	2.45	.35	.37	3.17	3.44	.27
November, 1917	49,474	2.96	.35	.38	3.69	3.85	.16
December, 1917–March, 1918	195,190	3.04	.40	.35	3.79	4.30	.51
April, 1918	51,117	3.03	.48	.33	3.84	4.25	.41
May, 1918	55,826	3.10	.39	.34	3.83	4.16	.33
June, 1918	49,490	3.09	.59	.34	4.02	4.24	.22
July, 1918	58,970	2.92	.44	.31	3.67	4.38	.71
August–December, 1918	231,689	3.18	.52	.38	4.08	4.58	.50
Year 1916	377,349	2.03	.26	.43	2.72	2.93	.21
Year 1917	525,008	2.45	.27	.39	3.11	3.60	.49
Year 1918	592,585	3.10	.48	.35	3.93	4.41	.48

[1] Amount by which the total f. o. b. mine cost exceeded the sales realization.

The information appearing in the first two divisions of Table 87 is shown in graphic form in Chart 18 (opposite). Costs and sales realizations for the six operators were not obtained by months for 1916, but are combined figures for the calendar year. Their average labor cost for the year was $2.03 per ton, their total f. o. b. mine cost $2.72 per ton, their sales realization $2.93, and their margin 21 cents per ton.

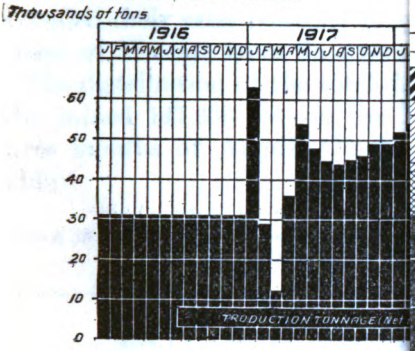
From January, 1917 on, the commission has figures compiled directly from the monthly reports. The first quarter of 1917 showed the effect of the increased demand for coal on the "spot" market in a margin (81 cents per ton) much higher than the average for 1916 (21 cents per ton). The drop in sales realization from $3.31 per ton in February to $2.50 in March is probably due to the shipping out of coal to complete delivery on relatively low-priced contracts and to the usual spring falling off in demand. The average f. o. b. mine cost for January–March, 1917, was $2.79 per ton, and the sales realization $3.60.

The average labor cost during April–August, 1917, was $2.36 per ton—an increase of 20 cents over that for January–March, 1917 ($2.16 per ton). This increase in cost is principally attributable to the higher wage scale, which went into effect about May 1, 1917, since the average monthly output during April–August was 45,752 tons—a marked increase over the average for January–March (34,992 tons). The average f. o. b. mine cost for April–August, 1917, was $2.99—an increase of 20 cents over January–March. The sales realization in April was $2.96 per ton—an increase of 46 cents over that of March. In May it was $3.53; in June, $3.77; and in July, $3.99 per ton. The average margin during April–August was 63 cents per ton—a decrease of 18 cents from January–March.

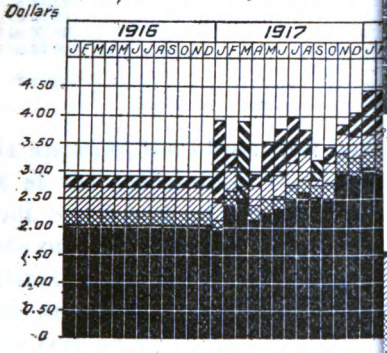
On August 21, 1917, the Government first fixed prices under the Lever Act. The prices fixed by Executive order for the sale of coal not then under contract in this district on August 21, 1917, were as follows: Run of mine, $3.05; prepared sizes, $3.30; slack, $2.80. The average proportions which these three classes of coal formed of the total output, based on actual returns for all operators in this district who reported to the Federal Trade Commission during the period August–December, 1917, were as follows: Run of mine, 26 per cent; prepared sizes, 58 per cent; slack, 16 per cent. Had the entire output of the six operators been sold at the prices established August 21, 1917, it would have brought them a sales realization of $3.16 per ton. The six operators in Table 87 *actually* received a sales realization of $2.86 per ton during September. The average total f. o. b. mine cost of the six operators during September, 1917, was $3.20 per ton (21 cents higher than that for April–August, 1917). Their

CHART 18.—Production, Average Costs and ...tion of Amount paid by purchaser between ...tions, Jan. 1916 - Dec. 1918, of Operator... ...rincipal Costs and the Margin, based on each 550,000 tons annually in McAlester... ...s Realizations received during specified ...16, 1917 and 1918, in Oklahoma.

A. Production, monthly average for ... months for 1917 and 1918.

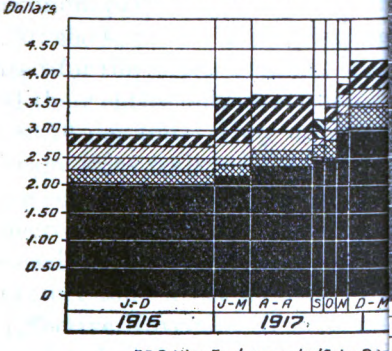


B. Average Costs and Sales Realizati... whole, 1917 and 1918 by months.



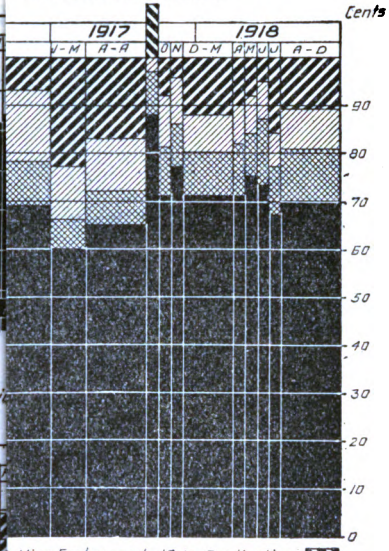
F.O.B. Mine Cost exceeded Sales R...

C. Average Costs and Sales Realizatio... periods, Jan. 1916 - Dec. 1918.



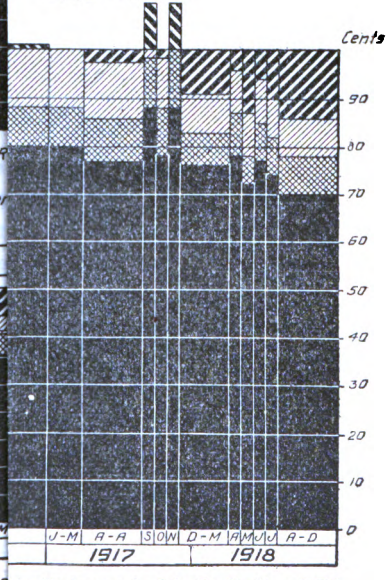
F.O.B. Mine Cost exceeded Sales Rea...

A.
Mc Alester Vein District



...Mine Cost exceeded Sales Realization

B.
Eastern District



...ine Cost exceeded Sales Realization

output during September, 1917, was 45,783 tons, practically the same as the average of April–August (45,752 tons). The average sales realization of the six operators for September was $2.86 (76 cents lower than that for April–August), and their total f. o. b. mine cost exceeded their sales realization by 34 cents per ton, making a net decrease of 97 cents from the average margin of April–August.

The distribution of the total f. o. b. mine costs for eight operators who mined 147,636 tons in the McAlester Vein district during the three months of August–October, 1917, is shown in the following table:

TABLE 88.—*Total f. o. b. mine costs of eight operators in the McAlester Vein district of Oklahoma during August–October, 1917.*

Total f. o. b. mine cost per ton by $0.10 groupings.	Number of operators.	Accumulated per cent of output.
$2.60 to $2.69	2	8.4
$3.20 to $3.29	3	59.5
$3.30 to $3.39	1	85.1
$3.40 to $3.49	1	94.2
$3.80 to $3.89	1	100.0
Total	8	100.0

It appears, therefore, that had the operators sold their entire output at the prices fixed by the President on August 21, 1917, only about 8 per cent of the output would have shown a margin of 25 cents or over per ton. The eight operators *actually* received a sales realization during August–October, 1917, of $3.36 per ton, which left them an average margin of 9 cents per ton over their average f. o. b. mine cost of $3.27 per ton.

Effective October 1, 1917, the Fuel Administration made an increase in the existing maximum prices for the district. The new maximum prices were as follows: Run of mine, $3.50; prepared sizes, $4.30; slack, $2.25. Applying the proportions of these classes already stated for the district, the six operators would have received, had they sold their entire output at the new prices, a possible sales realization of $3.76 per ton. They *actually* received during October, 1917, an average sales realization of $3.44 per ton. The average total f. o. b. mine cost of the six operators, for October, 1917, was $3.17 per ton—a decrease of 3 cents from that of September. The production increased, being 46,318 tons in October, 1918. The margin was 27 cents per ton—a net increase of 61 cents over September.

Effective November 1, 1917, a 45-cent increase in the price of noncontracted coal was allowed by Executive order to take care of an increase in the wage scale which went into effect at that time in many

mining regions in the country. In the Oklahoma mines there seems to have been some delay in complying with certain conditions attached to the price increase. Effective November 30, 1917, the Fuel Administration issued an order addressed to the Oklahoma Coal Operators' Association, allowing a 25-cent increase over the prices established October 1, 1917, and later increased 45 cents per ton November 1, 1917, and attaching to this increase the following conditions:

Any operator adopting these prices will be understood to have agreed with the United States Fuel Administrator that, unless his cost sheets are filed on or before Friday, December 14, 1917, his right to use such prices shall on that day cease.

The above advances are conditioned upon the operators of your association agreeing with the mine workers of your State upon the form of contract covering the automatic penalty clause and the advance of wages provided for by the Washington agreement. We understand that such contract has been prepared and agreed upon between your association and the mine workers but that it has not been executed by both parties. We have authorized the advance of 25 cents as enumerated above for the purpose of meeting your views on the wage situation as expressed in your recent telegram. When your contract with the mine workers has been agreed upon as above suggested, and when it has received the approval of the United States Fuel Administrator, you will then be authorized to add to the prices named above an additional 45 cents per ton.

There is no information at hand which shows the date on which all operators in the district were entitled to add the full 45-cent increase.

The labor cost for November, 1917, of the six operators shown in Table 87 increased 51 cents per ton (from $2.45 per ton in October, 1917, to $2.96 per ton in November). This increase is attributable to the higher wage scale. The November production was 49,474 tons—an increase over that of October. The average total f. o. b. mine cost of the six operators for November, 1917, was $3.69 per ton (an increase of 52 cents over October), the sales realization $3.85 (an increase of 41 cents), and the margin 16 cents per ton (a decrease of 11 cents). The average total f. o. b. mine cost of the six operators for the period, December, 1917–March, 1918, was $3.79 per ton—an increase of 10 cents over November, 1917. The average monthly production was 48,798 tons—a slight decrease from November. The sales realization was $4.30 (an increase of 45 cents), and the margin 51 cents per ton (an increase of 35 cents).

Effective March 29, 1918, new maximum prices were fixed by the Fuel Administration for the district. The new prices (including the 45-cent increase effective November 1, 1917, because of the wage increase) were as follows: Run of mine, $4.70; prepared sizes, $5.55; slack or screenings, $3.45. The prices on run of mine and prepared sizes, however, were subject to the following summer reduc-

tions: March, 75 cents per ton; April, 60 cents; May, 45 cents; June, 30 cents; July, 15 cents. On August 1 the base prices named in the order became effective.

The maximum prices in effect for April, 1918, made a possible sales realization of $4.49 per ton had the entire output been sold at the maximum prices, in the already-stated proportion of run of mine, prepared sizes, and slack of the August–December, 1917, output. The total f. o. b. mine cost of the six operators during April, 1918, was $3.84 per ton—an increase of 5 cents over the average for December, 1917–March, 1918. The production in April showed an increase, being 51,117 tons, as compared with an average for December, 1917–March, 1918, of 48,798 tons. The sales realization was $4.25 (a decrease of 5 cents), and the margin 41 cents per ton (a decrease of 10 cents).

The possible sales realization at the prices in effect for May, 1918, was $4.62 per ton. The total f. o. b. mine cost during May, 1918, was $3.83 per ton—a decrease of 1 cent from that of April. There was an increase in the output, the production in May being 55,826 tons. The sales realization in May was $4.16 (a decrease of 9 cents), and the margin 33 cents per ton (a decrease of 8 cents).

Effective May 25, 1918, the Fuel Administration made a 10-cent reduction in the existing maximum prices for the district. The possible sales realization at the prices in effect for June, 1918, was $4.64 per ton. The f. o. b. mine cost of the six operators for June, 1918 ($4.02 per ton), increased 19 cents over that of May, 1918. Their output decreased to 49,490 tons. The average sales realization for June, 1918, was $4.24 per ton (an increase of 8 cents), and their margin 22 cents per ton (a decrease of 11 cents from that of May).

The possible sales realization at the prices in effect for July, 1918, was $4.77 per ton. The f. o. b. mine cost of the six operators for July, 1918 ($3.67 per ton), decreased 35 cents from that for June. The output increased to 58,970 tons. Their average sales realization for July was $4.38 per ton (an increase of 14 cents over June), and their margin 71 cents per ton (an increase of 49 cents).

The possible sales realization at the prices in effect from August 1, 1918, to the end of the year was $4.89 per ton. The average f. o. b. mine cost for the six operators during August-December, 1918, was $4.08 per ton—an increase of 41 cents over July. The production decreased, averaging 46,338 tons per month, as compared with that of July (58,970 tons). The sales realization during August–December, 1918, was $4.58 per ton (an increase of 20 cents over July), and the margin was 50 cents per ton (a decrease of 21 cents).

EASTERN DISTRICT.

The significance of the 12 periods selected for presenting the figures for 1916–1918 for the Eastern district has already been described under the McAlester Vein district (see p. 162).

TABLE 89.—*Revised costs and sales realizations of nine operators mining about 1,250,000 tons annually in the Eastern district of Oklahoma, 1916–1918.*

Period.	Production.	Cost per ton.				Sales realization per ton.	Margin per ton (realization over f. o. b. mine cost.
		Labor.	Supplies.	General expense.	Total f. o. b. mine.		
	Tons.						
Year 1916	1,007,183	$1.70	$0.16	$0.28	$2.14	$2.11	[1] $0.03
1917							
January	130,490	1.77	.14	.26	2.17	2.55	.38
February	89,800	1.85	.21	.29	2.35	2.09	[1] .26
March	82,219	1.85	.21	.28	2.34	2.00	[1] .34
April	74,232	1.90	.23	.29	2.42	2.13	[1] .29
May	105,093	2.12	.31	.26	2.69	2.68	[1] .01
June	98,628	2.03	.24	.28	2.55	2.69	.14
July	103,464	2.02	.20	.27	2.49	2.79	.30
August	100,744	2.11	.20	.28	2.59	2.71	.11
September	79,776	2.20	.25	.30	2.75	2.49	[1] .26
October	106,661	2.06	.26	.26	2.58	2.63	.05
November	85,797	2.65	.37	.31	3.33	3.02	[1] .31
December	82,878	2.70	.35	.36	3.41	3.36	[1] .05
1918							
January	124,814	2.54	.19	.28	3.01	3.48	.47
February	117,380	2.59	.19	.27	3.05	3.48	.43
March	116,532	2.50	.22	.28	3.00	3.23	.23
April	109,711	2.50	.29	.27	3.06	3.20	.14
May	123,145	2.48	.21	.31	3.00	3.44	.44
June	99,565	2.67	.27	.30	3.24	3.46	.22
July	111,746	2.62	.29	.29	3.20	3.54	.34
August	123,196	2.57	.27	.31	3.15	3.70	.55
September	107,733	2.63	.27	.29	3.19	3.67	.48
October	86,422	2.75	.29	.32	3.36	3.90	.54
November	96,530	2.74	.27	.32	3.33	3.91	.58
December	88,367	2.81	.35	.34	3.50	3.95	.45
Year 1916	1,007,183	1.70	.16	.28	2.14	2.11	[1] .03
January–March, 1917	302,509	1.82	.18	.27	2.27	2.27	.....
April–August, 1917	482,161	2.04	.24	.28	2.56	2.63	.07
September, 1917	79,776	2.20	.25	.30	2.75	2.49	[1] .26
October, 1917	106,661	2.05	.27	.26	2.58	2.63	.05
November, 1917	85,797	2.65	.37	.31	3.33	3.02	[1] .31
December, 1917–March, 1918	441,604	2.57	.23	.29	3.09	3.39	.30
April, 1918	109,711	2.50	.29	.27	3.06	3.20	.14
May, 1918	123,145	2.48	.21	.31	3.00	3.44	.44
June, 1918	99,565	2.67	.27	.30	3.24	3.46	.22
July, 1918	111,746	2.62	.29	.29	3.20	3.54	.34
August–December, 1918	502,248	2.69	.29	.31	3.29	3.81	.52
Year 1916	1,007,183	1.70	.16	.28	2.14	2.11	[1] .03
Year 1917	1,139,782	2.09	.25	.28	2.62	2.60	[1] .02
Year 1918	1,305,141	2.60	.26	.30	3.16	3.56	.40

[1] Amount by which the total f. o. b. mine cost exceeded the sales realization.

The information appearing in the first two divisions of Table 89 is shown in graphic form in Chart 19 (opposite p. 164). Costs and sales realizations for the nine operators were not obtained by months for 1916, but are combined figures for the calendar year. Their aver-

age labor cost for the year was $1.70 per ton; their total f. o. b. mine cost, $2.14 per ton; their sales realization, $2.11. Their total f. o. b. mine cost exceeded their sales realization by 3 cents per ton.

From January, 1917, to the end of 1918, the commission has figures compiled directly from the monthly reports. The average f. o. b. mine cost of the nine operators in Table 89 for January–March, 1917, was $2.27 per ton, and the sales realization was likewise $2.27 per ton.

The average labor cost during April-August, 1917, was $2.04 per ton—an increase of 22 cents over that for January–March, 1917 ($1.82 per ton). This increase in cost is partly attributable to the higher wage scale, which went into effect about May 1, 1917, and partly to a slight decrease in the average monthly output, which was during April–August, 96,432 tons, as compared with 100,836 tons, the average for January–March. Their average f. o. b. mine cost for April–August, 1917, was $2.56 per ton (an increase of 29 cents over January–March); their average sales realization was $2.63 (an increase of 36 cents); and their margin was 7 cents per ton (an increase of 7 cents).

On August 21, 1917, the Government first fixed prices under the Lever Act. The prices fixed by Executive order for the sale of coal not then under contract in this district on August 21, 1917, were as follows:

Run of mine, $3.05; prepared sizes, $3.30; slack, $2.80. The average proportions which these three classes of coal formed of the total output, based on actual returns for all operators in this district who reported to the Federal Trade Commission during the period August–December, 1917, were as follows: Run of mine, 76 per cent; prepared sizes, 17 per cent; slack, 7 per cent. Had the entire output of the nine operators been sold at the prices established August 21, 1917, it would have brought them a sales realization of $3.08 per ton. The nine operators actually received, during September, 1917, a sales realization of $2.49 per ton. The average total f. o. b. mine cost of the nine operators was, for September, 1917, $2.75 per ton (an increase of 19 cents over the average for April–August), while the monthly tonnage was 79,776 tons (a decrease from the average for April–August—96,432 tons). Their total f. o. b. mine cost during September exceeded their sales realization by 26 cents per ton—a net decrease of 33 cents from the average margin of April–August.

The distribution of the total f. o. b. mine costs for 38 operators who mined 798,705 tons in the Eastern district during the three months of August–October, 1917, is shown in the following table:

TABLE 90.—*Total f. o. b. mine costs of 38 operators in the Eastern district of Oklahoma, August–October, 1917.*

Total f. o. b. mine cost per ton by $0.10 groupings.	Number of operators.	Accumulated per cent of output.
$1.30 to $1.39	1	1.7
1.40 to 1.49	1	3.9
1.70 to 1.79	1	6.2
1.90 to 1.99	1	8.9
2.00 to 2.09	1	9.4
2.10 to 2.19	3	22.9
2.20 to 2.29	2	27.8
2.30 to 2.39	2	31.6
2.40 to 2.49	4	51.5
2.50 to 2.59	3	57.7
2.60 to 2.69	2	62.6
2.70 to 2.79	6	73.7
2.80 to 2.89	4	91.4
2.90 to 2.99	2	92.8
3.00 to 3.09	1	94.0
3.20 to 3.29	1	95.1
3.30 to 3.39	1	95.8
3.80 to 3.89	1	96.9
3.90 to 3.99	1	100.0
Total	38	100.0

It appears, therefore, that had the operators sold their entire output at the prices fixed by the President on August 21, 1917, about 74 per cent of the output would have shown a margin of 25 cents or over per ton. The 38 operators *actually* received a sales realization during August–October, 1917, of $2.77 per ton, which left them an average margin of 24 cents per ton over their average f. o. b. mine cost of $2.53 per ton.

Effective October 1, 1917, the Fuel Administration made an increase in the existing maximum prices for the district. There were three sets of prices: One set, covering coal mined in Leflore, Haskell, Pittsburg, and Latimer Counties, were: Run of mine, $3.50; prepared sizes, $4.30; slack, $2.25. Another set, covering coal mined in Okmulgee and Tulsa Counties, were: Run of mine, $3.10; prepared sizes, $3.90; slack, $2. A third set, covering coal mined in Coal County, were: Run of mine, $3.30; prepared sizes, $4.10; and slack, $2. Of the nine operators shown in Table 89, seven operators, producing 91 per cent of the output shown for 1917 and 1918, were in Leflore, Haskell, Pittsburg, and Latimer Counties; and two operators, producing 9 per cent in 1917 and 1918, were in Coal County.

The average total f. o. b. mine cost of the nine operators during October, 1917, was $2.58 per ton—17 cents lower than that for September, 1917. Their output during October, 1917, was 106,661 tons—a heavy increase over that of September (79,776 tons). The average sales realization of the nine operators for October was $2.63 (14 cents higher than that for September), and their margin 5 cents per ton (a net increase of 31 cents over September).

Effective November 1, 1917, a 45-cent increase in the price of non-contracted coal was allowed by Executive order to take care of an increase in the wage scale which went into effect at that time in many mining regions in the country. In the Oklahoma mines there seems to have been some delay in complying with certain conditions attached to the price increase. Effective November 30, 1917, the Fuel Administration issued an order, addressed to the Oklahoma Coal Operators' Association, allowing a 25-cent increase over the prices established October 1, 1917, and later increased 45 cents per ton November 1, 1917, and attaching to this increase certain conditions.[22] There is no information at hand which shows the date on which all operators in the district were entitled to add the full 45-cent increase. The labor cost for the period November, 1917, of the nine operators increased 60 cents per ton (from $2.05 per ton in October to $2.65 per ton in November). This increase is partly attributable to the higher wage scale and partly to a decrease in the average monthly production, which was 85,797 tons for November, as compared with 106,661 tons for October, 1917. The average total f. o. b. mine cost of the nine operators for the month of November was $3.33 per ton (an increase of 75 cents over October), the sales realization $3.02 (an increase of 39 cents), and their f. o. b. mine cost exceeded their sales realization by 31 cents per ton (a net decrease of 36 cents from October).

The average total f. o. b. mine cost for the nine operators during December, 1917–March, 1918, was $3.09 per ton—a decrease of 24 cents from that of November, 1917. This decrease is principally attributable to an increase in production, the average monthly production for December, 1917–March, 1918, being 110,401 tons, as compared with 85,797 tons during November, 1917. The average sales realization for December, 1917–March, 1918, was $3.39 per ton (an increase of 37 cents over November, 1917), and the margin 30 cents (a net increase of 61 cents).

Effective March 29, 1918, new maximum prices were fixed by the Fuel Administration for the district. The new prices, including the 45-cent increase effective November 1, 1917, because of the wage increase, were as follows: Run of mine, $4.15; prepared sizes, $5.05; slack or screenings, $2.95. The prices on run of mine and prepared sizes, however, were subject to the following summer reductions: March, 75 cents per ton; April, 60 cents; May, 45 cents; June, 30 cents; July, 15 cents. On August 1 the base prices named in the order became effective.

The maximum prices in effect for April, 1918, made a possible sales realization of $3.66 per ton had the entire output been sold at the

[22] See under The McAlester Vein District, p. 162.

maximum prices, in the already-stated proportion of run of mine, prepared sizes, and slack of the August–December, 1917, output. The total f. o. b. mine cost of the nine operators during April, 1918, was $3.06 per ton—a decrease of 3 cents from the average for December, 1917–March, 1918. The production in April showed a slight decrease, being 109,711 tons, as compared with an average for December, 1917–March, 1918, of 110,401 tons. The sales realization was $3.20 (a decrease of 19 cents), and the margin 14 cents per ton (a decrease of 16 cents).

The possible sales realization at the prices in effect for May, 1918, was $3.80 per ton. The total f. o. b. mine cost during May, 1918, was $3 per ton—a decrease of 6 cents from that of April. There was a marked increase in the output, the production in May being 123,145 tons. The sales realization in May was $3.44 (an increase of 24 cents), and the margin 44 cents per ton (an increase of 30 cents).

Effective May 25, 1918, the Fuel Administration made a 10-cent reduction in the existing maximum prices for the district. The possible sales realization at the prices in effect for June, 1918, was $3.84 per ton. The f. o. b. mine cost of the nine operators for June, 1918 ($3.24 per ton), increased 24 cents over that for May, 1918. Their output decreased to 99,565 tons. Their average sales realization for June, 1918, was $3.46 per ton (an increase of 2 cents), and their margin 22 cents per ton (a decrease of 22 cents from that of May).

The possible sales realization at the prices in effect for July, 1918, was $3.98 per ton. The f. o. b. mine cost of the nine operators for July, 1918 ($3.20 per ton), decreased 4 cents from that for June. The output increased to 111,746 tons. Their average sales realization for July was $3.54 per ton (an increase of 8 cents over June), and their margin 34 cents per ton (an increase of 12 cents).

The possible sales realization at the prices in effect from August 1, 1918, to the end of the year was $4.12 per ton. The average f. o. b. mine cost for the nine operators during August–December, 1918, was $3.29 per ton (an increase of 9 cents over July). The production decreased, averaging 100,449 tons per month, as compared with that of July (111,746 tons). The sales realization during August–December, 1918, was $3.81 per ton (an increase of 27 cents over July), and the margin was 52 cents per ton (an increase of 18 cents).

3. Relation of the cost subdivisions to the total f. o. b. mine costs.

The following tables, based on revised costs, show the distribution by specified periods between the items of labor, supplies, and general expense of each dollar in the total f. o. b. mine cost:

TABLE 91.—*Distribution between labor, supplies, and general expense of each dollar of total f. o. b. mine cost, 1916–1918, by specified periods, and by calendar years for six operators producing about 550,000 tons annually in the McAlester Vein district of Oklahoma.*

Period.	Labor.	Supplies.	General expense.
	Cents	*Cents.*	*Cents.*
Year 1916	75	9	16
January–March, 1917	78	8	14
April–August, 1917	79	8	13
September, 1917	79	8	13
October, 1917	77	11	12
November, 1917	80	10	10
December, 1917–March, 1918	80	11	9
April, 1918	79	12	9
May, 1918	81	10	9
June, 1918	77	15	8
July, 1918	80	12	8
August–December, 1918	78	13	9
Year 1916	75	9	16
Year 1917	79	9	12
Year 1918	79	12	9

TABLE 92.—*Distribution between labor, supplies, and general expense of each dollar of total f. o. b. mine cost, 1916–1918, by specified periods, and by calendar years for nine operators producing about 1,250,000 tons annually in the Eastern district of Oklahoma.*

Period.	Labor.	Supplies.	General expense.
	Cents.	*Cents.*	*Cents.*
Year 1916	79	8	13
January–March, 1917	80	8	12
April–August, 1917	80	9	11
September, 1917	80	9	11
October, 1917	79	11	10
November, 1917	80	11	9
December, 1917–March, 1918	83	8	9
April, 1918	82	9	9
May, 1918	83	7	10
June, 1918	83	8	9
July, 1918	82	9	9
August–December, 1918	82	9	9
Year 1916	79	8	13
Year 1917	80	9	11
Year 1918	82	8	10

The foregoing tables show that there were relatively slight variations from period to period in the proportion which the labor cost formed of the total f. o. b. mine cost throughout the period shown.

4. Relative increases in the various costs, 1916–1918.

In the tables following are shown the relative increases in the various costs during 1917–18, based on the costs of the year 1916.

TABLE 93.—*Relative increases in the various average costs, 1917–18, as compared with the year 1916, for six operators producing about 550,000 tons annually in the McAlester vein district of Oklahoma.*

Period.	Labor.	Supplies.	General expense.	Total f. o. b. mine cost.
	Per cent.	*Per cent.*	*Per cent.*	*Per cent.*
Year 1916	[1] B	[1] B	[1] B	[1] B
January–March, 1917	6	[2] 12	[2] 7	3
April–August, 1917	16	[2] 4	[2] 12	10
September, 1917	24	0	[2] 2	18
October, 1917	21	35	[2] 14	17
November, 1917	46	35	[2] 12	36
December, 1917–March, 1918	50	54	[2] 19	39
April, 1918	49	85	[2] 23	41
May, 1918	53	50	[2] 21	41
June, 1918	52	127	[2] 21	48
July, 1918	44	69	[2] 18	35
August–December, 1918	57	100	[2] 12	50

[1] Base. [2] Decrease.

TABLE 94.—*Relative increases in the various average costs, 1917–18, as compared with the year 1916, for mine operators producing about 1,250,000 tons annually in the Eastern district of Oklahoma.*

Period.	Labor.	Supplies.	General expense.	Total f. o. b. mine cost.
	Per cent.	*Per cent.*	*Per cent.*	*Per cent.*
Year 1916	[1] B	[1] B	[1] B	[1] B
January–March, 1917	7	13	[2] 4	6
April–August, 1917	20	50	0	23
September, 1917	29	56	7	23
October, 1917	21	69	[2] 8	21
November, 1917	56	131	11	56
December, 1917–March, 1918	51	44	4	44
April, 1918	47	81	[2] 4	43
May, 1918	46	31	11	40
June, 1918	57	69	7	51
July, 1918	54	81	4	50
August–December, 1918	58	81	11	54

[1] Base. [2] Decrease.

The most significant increase was in the labor cost which in the McAlester Vein district was 57 per cent higher in August–December, 1918, and in the Eastern district 58 per cent higher during the same period. The rates of increase in the supplies cost, while much larger than those of the labor cost, had much less effect on the increase of the total f. o. b. mine cost, since, as shown in Tables 91 and 92, the supplies cost in the two districts averaged from 8 to 15 per cent of the total f. o. b. mine cost, while the labor cost formed from 75 to 83 per cent.

5. Changes in the relation of costs to sales realizations.

The following tables, based on the revised costs and sales realizations shown in Tables 87 and 89 (see pp. 163 and 168) show the distribution for specified periods between the items of labor, supplies,

general expense, and margin to operator, of each dollar paid for coal to the operator by the purchaser:

TABLE 95.—*Distribution of the amount paid by the purchaser between the various principal costs and the margin, based on each dollar of sales realization, 1916–1918, by specified periods and by calendar years, for 6 operators producing about 550,000 tons annually in the McAlester Vein district of Oklahoma.*

Period.	Labor.	Supplies.	General expense.	Total f. o. b. mine.	Margin.
	Cents.	*Cents.*	*Cents.*	*Cents.*	*Cents.*
Year 1916	69	9	15	93	7
January–March, 1917	60	6	11	77	23
April–August, 1917	65	7	11	83	17
September, 1917	88	9	15	[1] 112	[1] 12
October, 1917	71	10	11	92	8
November, 1917	77	9	10	96	4
December, 1917–March, 1918	71	9	8	88	12
April, 1918	71	11	8	90	10
May, 1918	75	9	8	92	8
June, 1918	73	14	8	95	5
July, 1918	67	10	7	84	16
August–December, 1918	70	11	8	89	11
Year 1916	69	9	15	93	7
Year 1917	68	7	11	86	14
Year 1918	70	11	8	89	11

[1] Total f. o. b. mine cost exceeded sales realization.

TABLE 96.—*Distribution of the amount paid by the purchaser between the various principal costs and the margin, based on each dollar of sales realization, 1916–1918, by specified periods and by calendar years, for nine operators producing about 1,250,000 tons annually in the Eastern district of Oklahoma.*

Period.	Labor.	Supplies.	General expense.	Total f. o. b. mine.	Margin.
	Cents.	*Cents.*	*Cents.*	*Cents.*	*Cents.*
Year 1916	80	8	13	[1] 101	[1] 1
January–March, 1917	80	8	12	100	0
April–August, 1917	77	9	11	97	3
September, 1917	88	10	12	[1] 110	[1] 10
October, 1917	78	10	10	98	2
November, 1917	88	12	10	[1] 110	[1] 10
December, 1917–March, 1918	76	7	8	91	9
April, 1918	78	9	9	96	4
May, 1918	72	6	9	87	13
June, 1918	77	8	9	94	6
July, 1918	74	8	8	90	10
August–December, 1918	70	8	8	86	14
Year 1916	80	8	13	[1] 101	[1] 1
Year 1917	80	10	11	[1] 101	[1] 1
Year 1918	73	7	9	89	11

[1] Total f. o. b. mine cost exceeded sales realization.

The facts in the foregoing tables are shown in graphic form in Chart 20 (opposite p. 164).

That part of the amount paid by the purchaser which went to labor varied from period to period. It was highest (88 cents out of the dollar) during September, 1917, in the McAlester Vein district, and during September, 1917, and November, 1917, in the Eastern district. It was lowest in the McAlester Vein district (60 cents out of the dollar) during January–March, 1917, and in the Eastern district (70 cents out of the dollar) during August–December, 1918.

The margin varied greatly from period to period. The total f. o. b. mine cost exceeded a dollar of sales realization by 12 cents in the McAlester Vein district during September, 1917, and by 10 cents in the Eastern district during September and November, 1917. The margin was highest (23 cents out of the dollar) in the McAlester Vein district during January–March, 1917, and during August–December, 1918 (14 cents out of the dollar) in the Eastern district.

It must not, however, be supposed that such margins were all clear profit to the operators. As has been pointed out, the commission's revised cost figures exclude any charges for interest, income and excess-profits taxes, donations, etc., which are expenditures that, while not entering into operating cost, must be met from the margin; nor is there any allowance in the total f. o. b. mine cost for the expense of selling the coal.

Of the 43 operators in Oklahoma whose costs were obtained for 1918, 21 reported a selling expense on their coal, and 22 did not report any. For those that did report, the claimed selling expense varied from two-tenths of 1 cent to 20 cents per ton, the average being 2 cents per ton.

It is fair to assume that a very large part of the output of the operators who reported no selling expense (forming about half of all operators reporting in the State) reached the consumer through the jobbers or sales agencies. Probably also a considerable fraction of the output of the remaining half of the operators went through such channels.

That part of the output sold through jobbers is sold f. o. b. at the mine, and there is little or no selling expense to be considered, since it is taken care of in the sales realization, and would not come out of margin.

Considering the total investment as the amount necessary to operate the business, whether in the form of capital stock and surplus, bonds or other borrowed money, the return on the total investment in the business, after deducting the estimated average selling expense from the margin and before deducting interest on borrowed money or Federal income and excess profits taxes, is shown in the statement following for the years 1916, 1917, and 1918, for the 15 operators who produced about 1,800,000 tons annually:

	McAlester Vein district.			Eastern district.		
	1916	1917	1918	1916	1917	1918
Margin between f. o. b. mine cost and sales realization	$0.21	$0.49	$0.48	[1] $0.03	[1] $0.02	$0.40
Estimated selling expense	.02	.02	.02	.02	.02	.02
Amount per ton earned on investment before deducting interest on borrowed money and Federal income and excess-profits taxes	.19	.47	.46	[2] .05	[2] .04	.38

[1] Total f. o. b. mine cost exceeded sales realization.
[2] Loss per ton after deducting sales realization from total f. o. b. mine cost and estimated selling expenses.

CHAPTER VII.—TEXAS.

Part I. Introduction.

1. Definition of the various producing districts or fields.

The distribution of output between the various coal-producing districts in Texas has been made by grouping all counties producing bituminous coal into one district, and all producing lignite coal into another district. The output comprised in the different districts is as follows:

Bituminous district includes all bituminous coal mined in the counties of Erath, Maverick, Palo Pinto, Webb, Wise, and Young.

Lignite district includes all lignite coal mined in the counties of Bastrop, Henderson, Hopkins, Houston, Leon, Medina, Milam, Robertson, Titus, and Wood.

For the purpose of this report the above descriptive titles will be used to designate the respective districts.

The location of these districts is shown on the map of Texas (facing p. 178).

2. General statistics of output.

The statistics in this section for coal produced in Texas have been compiled from reports published by the United States Geological Survey.

The proportion which the output of Texas has formed of the total bituminous coal output of the United States is as follows:

	Per cent.		Per cent.
1911	0.5	1915	0.5
1912	.5	1916	.4
1913	.5	1917	.4
1914	.5	1918	.4

In the Geological Survey report for 1917 combined figures only are shown for all the counties producing bituminous coal and for all the counties producing lignite.

The following statement shows the proportions which the output of each kind of coal formed of the State total:

Year.	Production.	Proportion of total produced in each district.	
		Bituminous.	Lignite.
	Tons.	*Per cent.*	*Per cent.*
1911	1,974,593	55	45
1912	2,188,612	55	45
1913	2,429,144	51	49
1914	2,323,773	52	48
1915	2,088,908	57	43
1916	1,987,503	52	48
1917	2,335,815	54	46

The United States Geological Survey has collected information on the "average value per ton" for a long series of years. This average is obtained by dividing the total selling value by the total tonnage.[23] The following table shows this information for 1911–1917:

TABLE 97.—*Production and average value, 1911–1917, by producing districts and State of Texas.*

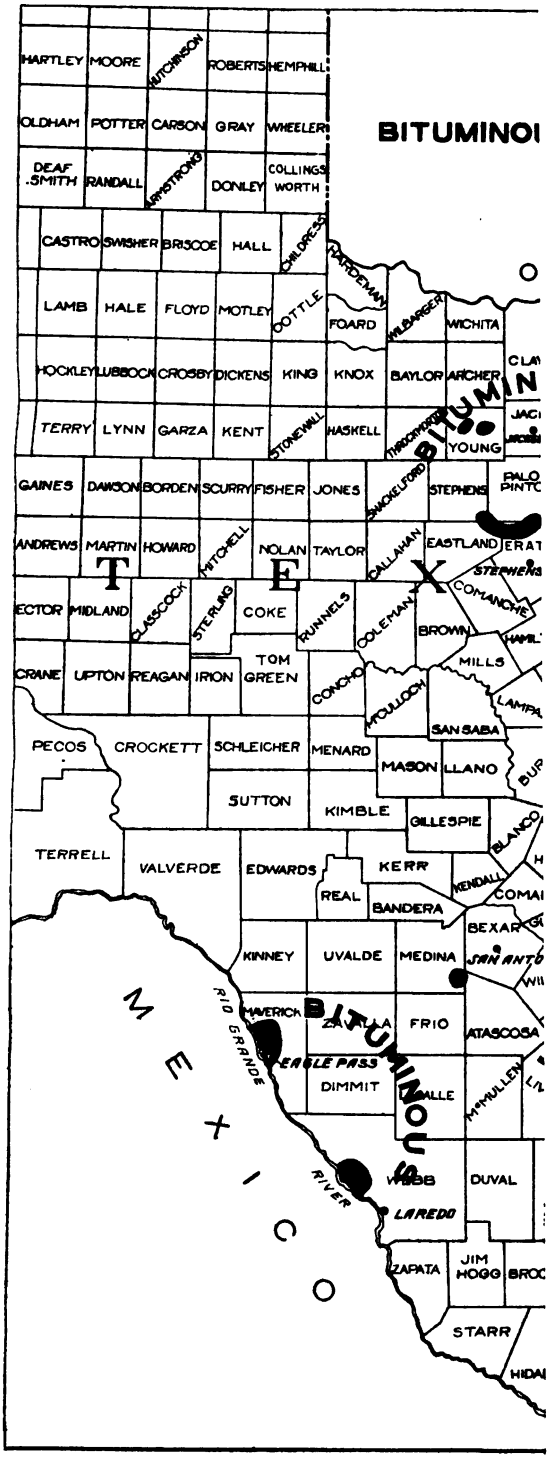
Year.	Bituminous.		Lignite.		State.	
	Production.	Average value per ton.	Production.	Average value per ton.	Production.	Average value per ton.
	Tons.		*Tons.*		*Tons.*	
1911	1,083,952	$2.30	890,641	$0.88	1,974,593	$1.66
1912	1,197,907	2.32	990,705	.89	2,188,612	1.67
1913	1,247,988	2.55	1,181,156	.94	2,429,144	1.77
1914	1,218,160	2.37	1,105,613	.94	2,323,773	1.69
1915	1,197,792	2.27	891,116	.82	2,088,908	1.65
1916	1,025,093	2.25	962,410	.82	1,987,503	1.56
1917	1,259,276	2.49	1,096,539	.95	2,355,815	1.77

In its reports for 1916 and 1917 the Geological Survey published "average values" in more detail than in previous reports. The following table is compiled from statistics appearing in the 1916 and 1917 reports:

TABLE 98.—*Disposition of production and average values, by producing districts and State of Texas, 1916–17.*

District.	Loaded at mines for shipment.				Sold to local trade and used by employees.			
	1916		1917		1916		1917	
	Production.	Average value per ton.	Production.	Average value per ton.	Production.	Average value per ton.	Production.	Average value per ton.
	Tons.		*Tons.*		*Tons.*		*Tons.*	
Bituminous	999,484	$2.25	1,221,788	$2.53	9,977	$2.85	2,258	$3.25
Lignite	940,463	.82	1,070,570	.95	7,693	.83	8,844	.92
State	1,939,947	1.56	2,292,358	1.79	17,670	1.97	14,102	1.79

[23] "The value of coal given in this report is the realization value at the mine f. o. b. cars, and the average value per ton is the average realization price obtained by dividing the total value by the number of tons sold or produced. The coal used at the mine, the coal coked by the producing company, and the coal used in some other industry by the company operating the mine—an appreciable proportion of the whole—is never sold, and the value placed upon it is either an estimate or the figure at which it is carried on the books, either of which is supposedly based on what the coal would have brought if sold or what other fuel for the respective purpose would have cost if its purchase had been necessary. In other words, the values given represent returns to the operators for coal sold, plus estimated exchange value of that not sold. These figures do not necessarily show prices or even an average of the prices of coal at the mine." U. S. Geological Survey (Mineral Resources of the United States, 1917. Part II, p. 952).



181197°—21. (To face page 178.)

TABLE 98.—*Disposition of production and average values, by producing districts and State of Texas, 1916–17*—Continued.

District.	Used at mines for steam and heat.				Total.			
	1916		1917		1916		1917	
	Production	Average value per ton.	Production.	Average value per ton.	Production.	Average value per ton.	Production.	Average value per ton.
	Tons.		*Tons.*		*Tons.*		*Tons.*	
Bituminous	15,632	$1.54	32,230	$1.06	1,025,093	$2.25	1,259,276	$2.49
Lignite	14,254	.76	17,125	.88	962,410	.82	1,096,539	.95
State	29,886	1.17	49,355	1.00	1,987,503	1.56	2,355,815	1.77

3. Character of the consumption of Texas coal.

A portion of the output of bituminous and lignite coal in Texas goes into domestic consumption. The proportion thus used varied from district to district, and is influenced partly by the nature of the coal, partly by the availability of substitutes, and partly by the extent of preparation given the coal for the purpose of adapting it to domestic use.

The exact extent to which the coal from this State enters into domestic use is not definitely ascertainable from any figures at present available. In the 1915 report of the United States Geological Survey[24] some statistics of the distribution of bituminous and lignite coal by classes of consumers, for Texas, are shown. From these the percentages of consumption shown in the following statement have been compiled:

	Per cent.
Railroad	49.7
Steamship bunker	----
Coke	----
Gas	----
Domestic and small steam trade	39.0
Industrial steam trade	4.8
Exports	3.7
Mine fuels	2.8
Special	----
Total output (tons)	2,088,908

The following statistics of distribution of shipments of bituminous and lignite coal, by classes of consignees, October 5, 1918, to Febru-

[24] Mineral Resources of the United States, 1915. Part II, pp. 471–472.

ary 1, 1919, are taken from an unpublished manuscript of the Geological Survey, and are published by permission of that bureau:

	Per cent.
Railroad fuel	38.5
United States Government	2.5
State and county institutions	1.0
Public utilities, gas and electric	12.7
Retail dealers	4.6
Industries, including iron and steel	40.7
	100.0

The use of coal for domestic consumption introduces, to a greater or less extent, changes in the character of the seasonal demand. In report No. 2 on Pennsylvania anthracite, the commission pointed out the wide differences between the character of the demand for coal for domestic consumption and the demand for industrial use. Despite the marked seasonal fluctuations the annual domestic demand is likely to be a fairly constant quantity from year to year. On the other hand, the industrial demand for coal, while not always subject to such extreme *seasonal* fluctuations as that of coal for domestic use, is likely to vary to a much greater extent from *year* to *year*, influenced as it is primarily by periods of industrial prosperity or depression.

Part II. 1918 costs and sales realizations.

1. Number and extent of operations covered.

The 1918 production of the 31 operators in Texas from whom cost reports were obtained by the commission was as follows:

	Tons.	Per cent.
Bituminous district:		
4 operators from whom costs were obtained for 12 months	267,311	24.3
4 operators from whom costs were obtained for less than the full 12 months (actual tonnage reported, 736,480 tons), estimated yearly tonnage	831,636	75.7
Total	1,098,947	100.0
Lignite district:		
14 operators from whom costs were obtained for 12 months	817,660	73.7
1 operator from whom costs were obtained for 12 months, but which were excluded for certain reasons	18,954	1.7
8 operators from whom costs were obtained for less than the full 12 months (actual tonnage reported, 162,917 tons), estimated yearly tonnage	272,676	24.6
Total	1,109,290	100.0
State:		
18 operators from whom costs were obtained for 12 months	1,084,971	49.1
1 operator from whom costs were obtained for 12 months, but which were excluded for certain reasons	18,954	.9
12 operators from whom costs were obtained for less than the full 12 months (actual tonnage reported, 899,397 tons), estimated yearly tonnage	1,104,312	50.0
Total	2,208,237	100.0

The above figures are shown, *inclusive* of power-house fuel, for comparison with the United States Geological Survey statistics.

The total output of the 18 operators from whom costs were obtained for 12 months was, *exclusive* of power-house fuel, 1,060,063 tons.

The prices for the bituminous coal output, fixed by the Fuel Administration, made, in effect, three districts, one for the output of Young, Erath, and Palo Pinto Counties, one for the output of Wise County, and one for the remainder of the bituminous output in the State (in Maverick and Webb Counties). As will be noted above, reports for the entire 12 months were obtained from but four operators. One of these operators was located in Young County, one in Wise County, one in Maverick County, and one in Webb County. In order not to permit the identification of any reporting operators with their individual costs, the returns are shown in combined form.

According to statistics issued by the Geological Survey the output of Texas during 1918 was 2,261,135 tons, of which 45,015 tons were used at the mine for steam and heat. The commission obtained cost information on 2,003,322 tons produced in 1918 (including power-house fuel), forming 89 per cent of the total as reported by the Survey. It publishes in this report cost information on 1,060,063 tons of commercial production, which is 48 per cent of the output reported by the Survey, after the exclusion of mine fuel.

2. Classification of producers by number of mines operated.

The costs of the 18 operators shown in the tabulations for Texas cover the output of 24 mines. The following table shows the number of mines operated by the different producers:

TABLE 99.—*Number of mines operated by different producers in Texas.*

Number of mines run by each operator.	Number of operators.	Proportion of total number.	Production tonnage, 1918.	Proportion of total production.
Bituminous district:		*Per cent.*	*Tons.*	*Per cent.*
1 mine	1	25.0	22,669	8.9
2 mines	3	75.0	231,116	91.1
Total (number of mines, 7)	4	100.0	253,785	100.0
Lignite district:				
1 mine	12	85.8	489,564	60.7
2 mines	1	7.1	196,026	24.3
3 mines	1	7.1	120,688	15.0
Total (number of mines, 17)	14	100.0	806,278	100.0
State:				
1 mine	13	72.2	512,233	48.3
2 mines	4	22.2	427,142	40.3
3 mines	1	5.6	120,688	11.4
Total (number of mines, 24)	18	100.0	1,060,063	100.0

It will be seen that in the State 13 producers (72 per cent of the total number shown in the table) operated only one mine each and produced 48 per cent of the output. The following statement shows the average number of mines operated by a producer and the average

production per mine operated by one-mine operators and by operators of two or more mines, for each district and for the State of Texas:

District.	Average number of mines operated by a producer.	Average production per mine operated by—		
		One-mine operators.	Operators of two or more mines.	All operators combined.
	Mines.	*Tons.*	*Tons.*	*Tons.*
Bituminous	1.8	22,669	38,519	26,255
Lignite	1.2	40,797	63,343	47,428
State	1.3	39,403	49,803	44,169

The number and sizes of mines in Texas are shown in further detail in the report for 1917 of the United States Geological Survey, from which the following statistics are derived:[25]

Annual output of mines (tons).	Mines.		Tonnage.	
	Number.	Proportion of total in State.	Average production per mine.	Proportion of total State output.
		Per cent.	*Tons.*	*Per cent.*
200,000 and over	1	2.1	204,625	8.7
100,000 to 199,999	5	10.4	149,596	31.8
50,000 to 99,999	9	18.7	63,995	24.4
10,000 to 49,999	26	54.2	30,464	33.6
Under 10,000	7	14.6	5,029	1.5
Total	48	100.0	49,079	100.0

3. *Classification of producers by size of output.*

The 18 producers tabulated for Texas are classified by size of their output in 1918, exclusive of power-house fuel, as follows:

TABLE 100.—*Classification of 18 Texas producers by size of output.*

Production during 1918 (tons).	Number of operators.	Proportion of total number.	Tonnage produced, 1918.	Proportion of total production.
Bituminous district:		*Per cent.*	*Tons.*	*Per cent.*
Under 50,000	2	50.0	56,763	22.4
50,000 to 99,999	1	25.0	82,949	32.7
100,000 to 499,999	1	25.0	114,073	44.9
Total	4	100.0	253,785	100.0
Lignite district:				
Under 50,000	9	64.3	314,374	39.0
50,000 to 99,999	3	21.4	175,190	21.7
100,000 to 499,999	2	14.3	316,714	39.3
Total	14	100.0	806,278	100.0
State:				
Under 50,000	11	61.1	371,137	35.0
50,000 to 99,999	4	22.2	258,139	24.4
100,000 to 499,999	3	16.7	430,787	40.6
Total	18	100.0	1,060,063	100.0

[25] Mineral Resources of the United States, 1917. Part II, pp. 947-948.

If the 12 operators from whom cost reports were received for less than the full 12 months during 1918, and the one operator from whom reports were received but in unusable form, be considered, it will be found that one operator had an estimated annual production of 157,000 tons and one other operator an estimated annual production of 560,000 tons. The remaining 11 operators had an average estimated annual production of 33,031 tons. Had reports for the full 12 months' period been available from them it would be found that about 84 per cent of the operators produced about 45 per cent of the output.

4. The 1918 costs and sales realizations shown by districts.

There was no change in the official wage scale for bituminous coal miners in Texas during 1918. Therefore the labor costs per ton for the period were principally affected by changes in the production tonnage and not by changes in the rate of wages paid labor. The effect of decreased production in increasing labor costs can be clearly seen on Diagram IX (opposite p. 184) and Charts 21 and 22 (opposite p. 186).

Tables 49 to 53 in the appendix to this report (see pp. 404–408) show the costs and the sales realizations for the Lignite district arranged from low to high in 10-cent groupings for each period shown. Throughout the tables for a given district the costs are shown for the same operators, but the costs of any given operator do not necessarily hold the same relative position in the 10-cent groups for each period. The shift of any operator in his relative position from period to period is generally slight.

The tables show for each quarter and for the year as a whole, by 10-cent groupings, the tonnage produced at that cost, its per cent of the total production, the place of the group in the accumulated percentage, and the number of operators whose costs fell within each 10-cent group.

As there were only four operators who filed returns for the full 12 months in the Bituminous district, no detailed appendix tables are shown for that district.

A summary of the significant facts brought out in Appendix Tables 49 to 53, for the Lignite district and similar facts for the Bituminous district appears in the following tables, in which are compared the true average cost and sales realization, the range of 90 per cent of the output which had the lowest costs and sales realizations, and the extreme range for the entire output of 18 operators.

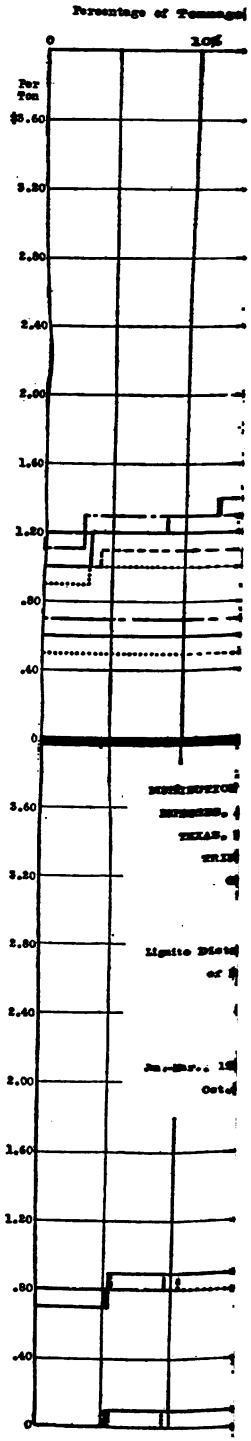
Table 101.—*1918 quarterly and yearly revised costs and sales realization for 4 operators in Bituminous district of the State of Texas, showing averages and range for 90 per cent and for 100 per cent of total output.*

Period.	Costs per net ton.												Sales realization per netton.		
	Labor.			Supplies.			General expense.			Total f. o. b. mine.					
	Average.	Range. 90 per cent output.	Range. 100 per cent output.	Average.	Range. 90 per cent output.	Range. 100 per cent output.	Average.	Range. 90 per cent output.	Range. 100 per cent output.	Average.	Range. 90 per cent output.	Range. 100 per cent output.	Average.	Range. 90 per cent output.	Range. 100 per cent output.
January-March	$2.54	$1.65-$3.71	$1.65-$3.71	$0.34	$0.18-$0.53	$0.18-$0.53	$0.35	$0.17-$0.64	$0.17-$0.64	$3.23	$2.76-$4.67	$2.76-$4.67	$3.76	$3.22-$4.90	$3.22-$4.90
April-June	2.86	1.99- 3.69	1.99- 3.69	.38	.09- .74	.09- .74	.43	.21- .80	.21- .80	3.67	3.14- 4.50	3.14- 4.50	3.83	3.14- 4.39	3.14- 4.39
July-September	2.92	2.12- 3.80	2.12- 3.80	.43	.22- .67	.22- .67	.37	.20- .43	.20- .86	3.72	3.37- 4.56	3.37- 4.56	4.20	3.92- 4.47	3.92- 4.47
October-December	3.15	2.19- 4.10	2.19- 4.10	.49	.24- .95	.24- .95	.51	.37- .60	.37- 1.02	4.14	3.68- 4.83	3.68- 4.83	4.69	3.94- 4.95	3.94- 4.95
Year	2.86	1.95- 3.83	1.95- 3.83	.41	.18- .71	.18- .71	.41	.23- .52	.23- .81	3.68	3.26- 4.64	3.26- 4.64	4.12	3.52- 4.62	3.52- 4.62

Table 102.—*1918 quarterly and yearly revised costs and sales realization for 14 operators in Lignite district of the State of Texas, showing averages and range for 90 per cent and for 100 per cent of total output.*

Period.	Costs per net ton.												Sales realization per net ton.		
	Labor.			Supplies.			General expense.			Total f. o. b. mine.					
	Average.	Range. 90 per cent output.	Range. 100 per cent output.	Average.	Range. 90 per cent output.	Range. 100 per cent output.	Average.	Range. 90 per cent output.	Range. 100 per cent output.	Average.	Range. 90 per cent output.	Range. 100 per cent output.	Average.	Range. 90 per cent output.	Range. 100 per cent output.
January-March	$0.68	$0.56-$0.86	$0.56-$1.25	$0.07	$0.02-$0.16	$0.02-$0.21	$0.21	$0.08-$0.27	$0.08-$0.30	$0.96	$0.70-$1.17	$0.70-$1.64	$1.19	$0.96-$1.30	$0.96-$1.47
April-June	.73	.60- .91	.60- 1.08	.09	.03- .17	.03- .31	.23	.08- .30	.08- .33	1.05	.76- 1.24	.76- 1.60	1.21	1.05- 1.33	1.05- 1.45
July-September	.80	.63- 1.08	.63- 1.25	.09	.04- .16	.04- .17	.23	.08- .29	.08- .60	1.12	.80- 1.46	.80- 1.87	1.47	1.22- 1.76	1.22- 1.98
October-December	.85	.70- 1.03	.70- 1.33	.10	.04- .20	.04- .22	.25	.08- .34	.08- .48	1.20	.83- 1.57	.83- 2.02	1.55	1.10- 1.79	1.10- 1.89
Year	.76	.64- 1.03	.64- 1.16	.09	.03- .15	.03- .23	.23	.08- .30	.08- .43	1.08	.77- 1.40	.77- 1.74	1.36	1.08- 1.58	1.08- 1.65

DIAGRAM IX



The following table of yearly averages is given for the sake of ready comparison of the two districts:

TABLE 103.—*Average costs and sales realizations of all Texas districts for the year 1918.*

District.	Production.	Costs per ton.				Sales realization per ton.	Margin per ton.
		Labor.	Supplies.	General expense.	Total, f. o. b. mine.		
	Tons.						
Bituminous	253,785	$2.86	$0.41	$0.41	$3.68	$4.12	$0.44
Lignite	806,278	.76	.09	.23	1.08	1.36	.28

Of special significance is difference in the labor costs per ton between the two districts. In the Lignite district cheaper labor is employed; the workings are generally shallow, being by drift or slope, and located where cheapness of development and operation can be had. Besides, as to thickness of seam (see Table 106, p. 188), about 46 per cent of the output of the Bituminous district came from seams averaging less than 2 feet thick, and 91 per cent from seams less than 4 feet thick, while in the Lignite district none of the output came from seams under 5 feet thick, and two-thirds of it came from seams between 6 and 11 feet thick.

It is apparent that these differences in cost are not attributable to the greater use of machines in mining coal in one district as compared with another, since the proportion of the total production mined by machines is stated by the United States Geological Survey to have been one-tenth of 1 per cent in 1917 for the State as a whole.[26]

5. *Relation of the costs to the sales realizations.*

The following table shows the distribution, by quarters and for the year 1918, between the items of labor, supplies, general expense, and margin of each dollar of sales realization received by the operator:

[26] Mineral Resources of the United States, 1917. Part II, p. 941.

TABLE 104.—*Distribution of the amount paid by the purchaser between the various principal costs and the margin, based on each dollar of sales realization, for the Bituminous and the Lignite districts in Texas, 1918, by quarters and for the year.*

Period.	Costs.				Margin.
	Labor.	Supplies.	General expense.	Total, f. o. b. mine.	
Bituminous district:	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*
January-March	68	9	9	86	14
April-June	75	10	11	96	4
July-September	70	10	9	89	11
October-December	67	10	11	88	12
Year	69	10	10	89	11
Lignite district:					
January-March	57	6	18	81	19
April-June	60	8	19	87	13
July-September	54	6	16	76	24
October-December	55	6	16	77	23
Year	56	6	17	79	21

These facts are shown in graphic form in Chart 23 (opposite).

6. *Comparison of claimed and revised costs.*

The foregoing tables present costs which have in some cases been revised by the accountants of the commission from the claimed figures reported on the original schedules by the operators. Table 54 in the appendix to this report shows the claimed 1918 costs for the Lignite district compiled in all cases directly from the figures submitted by the operators.

The changes brought about through the revision in the average costs for the year 1918 for the 18 operators were as follows:

Item.	Claimed costs.	Revised costs.	Increase (I), or decrease (D), due to revision.
Bituminous district:			
Production (tons)	267,311	253,785	[1] 13,526 (D)
Labor ... per ton	$2.72	$2.86	$0.14 (I)
Supplies ... do	.48	.41	.07 (D)
General expense ... do	.43	.41	.02 (D)
Total, f. o. b. mine ... do	3.63	3.68	.05 (I)
Lignite district:			
Production (tons)	817,660	806,278	[1] 11,382 (D)
Labor ... per ton	$0.75	$0.76	$0.01 (I)
Supplies ... do	.11	.09	.02 (D)
General expense ... do	.26	.23	.03 (D)
Total, f. o. b. mine ... do	1.12	1.08	.04 (D)
State:			
Production (tons)	1,084,971	1,060,063	[1] 24,908 (D)
Labor ... per ton	$1.24	$1.27	$0.03 (I)
Supplies ... do	.20	.16	.04 (D)
General expense ... do	.30	.27	.03 (D)
Total, f. o. b. mine ... do	1.74	1.70	.04 (D)

[1] Due to exclusion of power-house fuel.

LIGNITE AND BITUMINOUS COAL - TEXAS

CHART 21. — Production tonnage, by quarters for 1918 of 18 Operators by producing Districts in Texas:

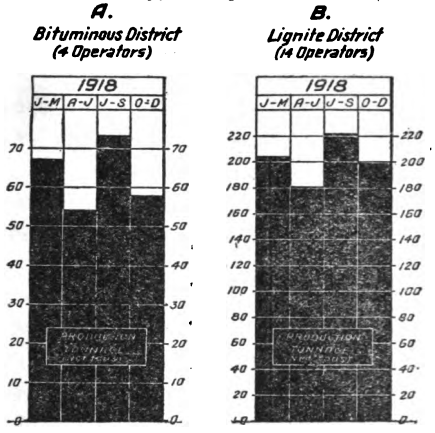


CHART 23. — Distribution of Amount paid by purchaser between the various principal Costs and the Margin, based on each dollar of Sales Realization, by quarters in 1918, in Texas.

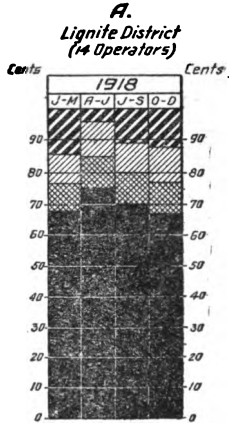
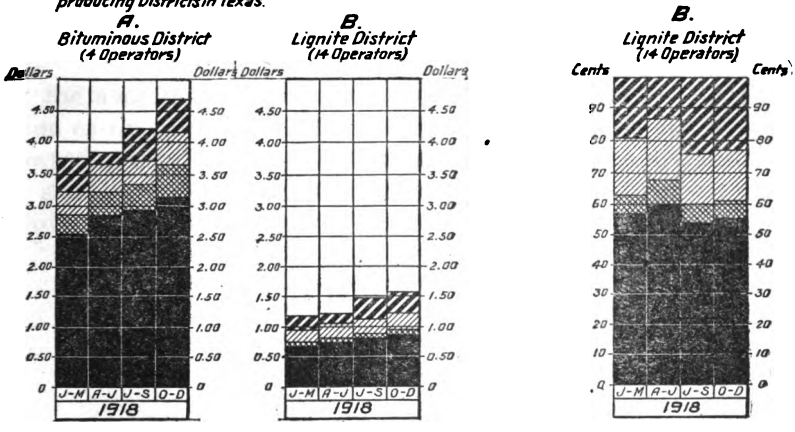


CHART 22. — Average Costs and Sales Realizations per ton, by quarters for 1918, of 18 Operators by producing Districts in Texas.



The increase of 3 cents in the average State revised labor cost over the claimed was caused by the use of the revised production tonnage as a divisor. The total claimed labor cost was $1,341,331, and the total revised labor cost was $1,341,579. The revision of 4 cents in the item of supplies was principally due to the inclusion by the operators of charges for power-house fuel at rates greatly in excess of the cost of production.

The costs claimed by some of the Texas operators were obviously open to question as to their accuracy. Such operators were required by the commission to furnish detailed information in support of their claimed costs. The examination of such detailed information revealed the fact that they had in some cases included charges for maintenance and contingent reserves, and in other cases had included officers' salaries greatly in excess of those paid in neighboring operations of similar size, and excessive charges for depreciation which had not been computed in accordance with the instructions of the commission.

7. 1918 costs shown by thickness of seam.

About 52 per cent of the output of Texas came from five producers who operated more than one mine. Most of these producers did not report the costs of each mine separately. In order to include them in a tabulation to show costs by thickness of seam it was necessary to use the average of the seams mined by them. This has led to the inclusion of data in the tabulation for the 18 operators which to a slight extent vitiates its scientific value, since it is not known whether equal tonnage was derived from mines which had seams above or below the average thickness. To avoid making possible the identification of operators with their respective costs, no details of cost are shown for the Bituminous district, but the returns are included in the summary for the State. The tabulation by thickness of seam follows:

TABLE 105.—*Seam tabulation of revised costs for 18 operators in Texas.*

Thickness of seam.	Number of operators.	Production, 1918.	Costs per ton.			
			Labor.	Supplies.	General expense.	Total f. o. b. mine.
Bituminous district:		*Tons.*				
12 to 23 inches	2	117,043	(1)	(1)	(1)	(1)
36 to 47 inches	1	114,073	(1)	(1)	(1)	(1)
96 to 107 inches	1	22,669	(1)	(1)	(1)	(1)
Total	4	253,785	$2.86	$0.41	$0.41	$3.68
Lignite district:						
60 to 71 inches	3	261,644	.71	.05	.24	1.00
72 to 83 inches	3	181,358	.73	.11	.22	1.06
96 to 107 inches	4	192,453	.76	.09	.25	1.10
120 to 131 inches	4	170,823	.88	.11	.22	1.21
Total	14	806,278	.76	.09	.23	1.08
State:						
12 to 23 inches [2]	3	231,116	2.95	.40	.37	3.72
60 to 71 inches	3	261,644	.71	.05	.24	1.00
72 to 83 inches	3	181,358	.73	.11	.22	1.06
96 to 107 inches	5	215,122	.88	.13	.31	1.32
120 to 131 inches	4	170,823	.88	.11	.22	1.21
Total	18	1,060,063	1.27	.16	.27	1.70

[1] To avoid identification of operators with their respective costs, no details are shown.
[2] Includes 1 operator with a 44-inch seam.

The following table shows the distribution of the output of the 18 operators between the different seams:

TABLE 106.—*Distribution, between seams, of output of 18 operators in Texas.*

Thickness of seam.	4 operators producing 253,785 tons in 1918.	
	Number of operators.	Per cent of output.
Bituminous district:		
12 to 23 inches	2	46.1
36 to 47 inches	1	45.0
96 to 107 inches	1	8.9
Total	4	100.0
	14 operators producing 806,278 tons in 1918.	
Lignite district:		
60 to 71 inches	3	32.4
72 to 83 inches	3	22.5
96 to 107 inches	4	23.9
120 to 131 inches	4	21.2
Total	14	100.0
	18 operators producing 1,060,063 tons in 1918.	
State:		
12 to 23 inches	2	11.0
36 to 47 inches	1	10.8
60 to 71 inches	3	24.7
72 to 83 inches	3	17.1
96 to 107 inches	5	20.3
120 to 131 inches	4	16.1
Total	18	100.0

It will be noted that in the Lignite district the labor cost per ton increased with an increase of thickness of seam. While this is apparently an exception to the general rule of decrease of labor costs with increase in thickness of seam, it should be pointed out that the thinnest seams mined for lignite are from 5 to 6 feet thick, a thickness that in most coal fields is found to be most advantageous for economical mining, and that a further increase in thickness usually involves higher labor costs, because of the need for an excessive amount of timbering, etc.

General expense is less affected than labor cost by conditions of a physical nature, like thickness of seam, but is closely connected with the commercial and financial economies of operation. The folfollowing comparison of the 13 one-mine operators with the 5 operators of two or more mines is of interest:

TABLE 107.—*Comparison of average revised costs: Operators of one mine with operators of two or more mines in Texas.*

District.	Number of operators.	Number of mines.	Output, 1918.			Costs per ton.			
			Total output.	Output per operator.	Output per mine.	Labor.	Supplies.	General expenses.	Total f. o. b. mine.
			Tons.	*Tons.*	*Tons.*				
Bituminous:									
1 mine	1	1	22,669	22,669	22,669	(1)	(1)	(1)	(1)
2 or more mines	3	6	231,116	77,039	38,519	(1)	(1)	(1)	(1)
Total	4	7	253,785	63,446	36,255	2.86	.41	.41	3.68
Lignite:									
1 mine	12	12	489,564	40,797	40,797	.80	.11	.22	1.13
2 or more mines	2	5	316,714	158,357	63,343	.71	.06	.25	1.02
Total	14	17	806,278	57,591	47,428	.76	.09	.23	1.08
State:									
1 mine	13	13	512,233	39,403	39,403	.85	.12	.25	1.22
2 or more mines	5	11	547,830	109,566	49,803	1.65	.21	.30	2.16
Total	18	24	1,060,063	58,892	44,169	1.27	.16	.27	1.70

[1] To avoid identification of operators with their respective costs, no details are shown.

In the case of the Lignite district and for the State as a whole the general expense costs of operators of two or more mines exceeded those for one-mine operators.

Part III. Comparative costs and sales realizations, August, 1917–December, 1918.

1. Representativeness of statistics presented.

Representative figures were not obtained by the commission for costs and sales realizations prior to August, 1917, in the two Texas districts. Use has, therefore, been made of the monthly reports

covering the last five months of 1917. Most of the operators that appear in the 1917 appear also in the 1918 figures, but there are some exceptions, which, however, do not affect the general comparability of the 1917 figures with those of 1918. The average total f. o. b. mine costs, sales realizations, and margins of about half of the entire output mined in the districts are presented for these districts.

2. The revised costs, sales realizations, and production figures, and analyses of the fluctuations, by districts, August, 1917–December, 1918.

BITUMINOUS DISTRICT.

The significance of the 11 periods selected for presenting the figures for August, 1917–December, 1918, for the Bituminous district is as follows:

August, 1917.—The greater part of this period was prior to the fixing, by Executive order of August 21, 1917, of maximum prices for bituminous coal not sold under contracts made prior to that date, and the establishment of a Fuel Administration to regulate the fuel situation.

September–October, 1917.—This period followed the fixing, by Executive order of August 21, 1917, of maximum prices for bituminous coal not sold under contracts made prior to that date and the establishment of a Fuel Administration to regulate the fuel situation. The 1917 wage scale continued in operation during these two months.

November, 1917.—This period directly followed the increase in maximum prices allowed by Executive order in consequence of the adoption of a new wage scale (1917–18) which was higher than that adopted earlier in 1917. Effective November 16, 1917, the Fuel Administration established new maximum prices for the output of a part of the district.

December, 1917.—This period followed the price change of November 16, 1918.

January–March, 1918.—During this period the prices fixed November 16, 1917, continued. The number of operators in the district from whom 1918 figures were obtained was less than that from whom August–December, 1917, figures were available.

April, 1918.—This period directly followed the change in maximum prices effective April 1, 1918, made by the Fuel Administration which established maximum base prices for a part of this district. During April the base prices on the output sold were subject to a summer reduction of 75 cents per ton from the base.

May, 1918.—During May the base prices effective April 1, 1918, were subject to a summer reduction of 60 cents per ton from the base.

Effective May 25, 1918, the Fuel Administration made a reduction of 10 cents per ton in the existing maximum prices for the district.

June, 1918.—The base prices effective April 1, 1918, and modified by the Fuel Administration's order of May 25, 1918, were changed by order of the Fuel Administration, effective June 22, 1918, and new maximum prices were at the same time established for the remainder of the district. Both sets of prices were subject to a summer reduction, during June, of 45 cents per ton.

July, 1918.—During July the base prices effective June 22, 1918, were subject to a summer reduction of 30 cents per ton.

August, 1918.—The base prices established June 22, 1918, were changed for a part of the output of the district by the Fuel Administration's order effective August 16, 1918. The new base prices and the old base prices which continued in effect for the output of the remainder of the district were both subject to a summer reduction for August of 15 cents.

September–December, 1918.—Effective September 4, 1918, the base prices for a part of the output of the district were changed by the Fuel Administration.

TABLE 108.—*Revised costs and sales realizations of operators in the Bituminous district in Texas, August, 1917–December, 1918.*

Period.	Number of operators.	Production.	Total f. o. b. mine cost, per ton.	Sales realization, per ton.	Margin, per ton.
		Tons.			
August, 1917	6	36,842	$3.00	$3.04	$0.04
September-October, 1917	6	72,177	2.98	3.12	.14
November, 1917	6	42,887	3.14	3.63	.49
December, 1917	6	38,861	3.36	3.78	.42
January-March, 1918	4	67,866	3.23	3.76	.53
April, 1918	4	16,829	3.62	3.70	.08
May, 1918	4	17,494	3.74	3.60	[1].14
June, 1918	4	20,115	3.66	4.15	.49
July, 1918	4	26,995	3.35	3.97	.62
August, 1918	4	23,553	3.71	3.98	.27
September-December, 1918	4	80,933	4.15	4.69	.54

[1] Amount by which the total f. o. b. mine cost exceeded the sales realization.

On August 21, 1917, the Government first fixed prices under the Lever Act. The prices fixed by Executive order for the sale of coal not then under contract in this district on August 21, 1917, were as follows: Run of mine, $2.65; prepared sizes, $2.90; slack, $2.40. The average proportions which these three classes of coal formed of the total ouptut, based on actual returns for all operators in this district who reported to the Federal Trade Commission during the period, August–December, 1917, were as follows: Prepared sizes, 98 per cent; slack, 2 per cent. Had the entire output of the six

operators been sold at the prices established August 21, 1917, it would have brought them a sales realization of $2.89 per ton. The six operators actually received, during September–October, 1917, a sales realization of $3.12 per ton, which was 8 cents more than they received during August ($3.04 per ton). The average total f. o. b. mine cost of the six operators was, for September–October, 1917, $2.98 per ton, a decrease of 2 cents from that in August, while their average monthly tonnage was 36,089 tons, a slight decrease from that in August—36,842 tons. Their margin during September–October was 14 cents per ton, an increase of 10 cents over August.

Effective November 1, 1917, a 45-cent increase in the established maximum prices was allowed by Executive order, to take care of an increase in the wage scale which went into effect at that time. Effective November 16, 1917, the Fuel Administration established new maximum prices for the output of operators in certain specified counties. The new prices, including the 45-cent increase of November 1, were as follows: Young, Erath, and Palo Pinto Counties—run of mine, $4.05; prepared sizes, $4.85; slack, $2.70. Wise County—run of mine, $4.70; prepared sizes, $5.50; slack, $2.70. Of the six operators shown in Table 108, for August–December, 1917, two operators, mining about two-thirds of the total production shown for the district, were in Young, Erath, and Palo Pinto Counties, and one operator, mining about 8 per cent of the total production shown for the district, was in Wise County. The average f. o. b. mine cost of the six operators for November, 1917 ($3.14 per ton), increased 16 cents over that for September–October, 1917, this increase being principally attributable to the higher wage scale. The output increased to 42,887 tons. Their average sales realization for November, 1917, was $3.63 per ton, an increase of 51 cents over September–October, and their margin 49 cents per ton, an increase of 35 cents. The total f. o. b. mine cost of the six operators during December was $3.36 per ton, an increase of 22 cents over that of November. The production in December showed a decrease, being 38,861 tons. The sales realization was $3.78, an increase of 15 cents over November, and the margin 42 cents per ton, a decrease of 7 cents.

During January–March, 1918, the average total f. o. b. mine cost of the four operators who reported for the 12 months in 1918 was $3.23 per ton, their sales realization $3.76, and their margin 53 cents per ton.

Effective April 1, 1918, new maximum prices were fixed by the Fuel Administration for the counties of Young, Erath, Palo Pinto, and Wise. The new prices were the same as those established November 16, 1917, but were subject to the following monthly summer reduc-

tions: April 1, 75 cents per ton; May 1, 60 cents; June 1, 45 cents; July 1, 30 cents; August 1, 15 cents. On September 1 the base prices named in the order became effective. Of the four operators shown in Table 108, for 1918, one operator, mining about half of the output in the district was in Young County, and one operator, mining about 13 per cent of the output of the district, was in Wise County. The total f. o. b. mine cost of the four operators during April, 1918, was $3.62 per ton—an increase of 39 cents over the average for January–March. The production in April showed a decrease, being 16,829 tons as compared with an average for January–March of 22,622 tons. The sales realization was $3.70 (a decrease of 6 cents from that for January–March), and the margin 8 cents per ton (a decrease of 45 cents). The total f. o. b. mine cost during May, 1918, was $3.74 per ton—an increase of 12 cents over that of April. There was an increase in the output, the production in May being 17,494 tons. The sales realization in May was $3.60 (a decrease of 10 cents), and the f. o. b. mine cost exceeded the sales realization by 14 cents per ton (a net decrease of 22 cents from April). Effective May 25, 1918, the Fuel Administration made a 10-cent reduction in the existing maximum prices for the district. The f. o. b. mine cost of the four operators for June, 1918 ($3.66 per ton), decreased 8 cents from that for May, 1918. Their output increased to 20,115 tons. Their average sales realization for June, 1918, was $4.15 per ton (an increase of 55 cents), and their margin 49 cents per ton (a net increase of 63 cents over May).

Effective June 22, 1918, the Fuel Administration made a change in the existing maximum base prices. The new maximum base prices established for Young, Erath, and Palo Pinto Counties, including the 45-cent price increase of November 1, 1917, because of the wage increase, were: Run of mine, $3.85; prepared sizes, $4.65; slack $2.70. For the entire district outside of the foregoing three counties: Run of mine, $4.70; prepared sizes, $5.50; slack, $2.70. In all cases the maximum prices were subject to the same summer reductions as named in the order of April 1, 1918. The f. o. b. mine cost of the four operators for July, 1918, ($3.35 per ton), decreased 31 cents from that for June. The output increased to 26,995 tons. Their average sales realization for July was $3.97 per ton (a decrease of 18 cents from June), and their margin 62 cents per ton (an increase of 13 cents).

Effective August 16, 1918, the Fuel Administration made a change in the existing maximum base prices for the output of Young, Erath, and Palo Pinto Counties. The new prices, including the 45-cent price increase of November 1, 1917, because of the wage increase, were: Run of mine, $3.85; prepared sizes, $5; slack, $2.70. These prices were subject to the same summer reductions as named

in the order of April 1, 1918. The average f. o. b. mine cost for the four operators during August, 1918, was $3.71 per ton—an increase of 36 cents over July. The production decreased to 23,553 tons. The sales realization during August was $3.98 per ton (an increase of 1 cent over July), and the margin 27 cents per ton (a decrease of 35 cents).

Effective September 4, 1918, the Fuel Administration made a change in the existing base prices for the output of Wise County. The new prices, including the 45-cent price increase of November 1, 1917, because of the wage increase, were: Run of mine, $4.70; prepared sizes, $5.85; slack, $2.70. The total f. o. b. mine cost of the four operators during September–December, 1918, was $4.15 per ton—an increase of 44 cents over that of August. The average production showed a decrease averaging 20,253 tons per month. The sales realization was $4.69 (an increase of 71 cents over August), and the margin 54 cents per ton (an increase of 27 cents).

LIGNITE DISTRICT.

The significance of the eight periods selected for presenting the figures for August, 1917–December, 1918, for the Lignite district is as follows:

The first two periods (August, 1917, and September–October, 1917) have been described under the Bituminous district (see p. 190).

November–December, 1917.—This period directly followed the increase in maximum prices allowed by Executive order in consequence of the adoption of a new wage scale (1917–18), which was higher than that adopted earlier in 1917.

January–February, 1918.—During this period the prices fixed November 1, 1917, continued. The number of operators in the district from whom 1918 figures were obtained was less than that from whom August–December, 1917, figures were available.

March, 1918.—Effective March 5, 1918, the Fuel Administration established new maximum prices for the district.

April–May, 1918.—Beginning with this period, practically the entire output of coal, whether sold under contract or not, was subject to the governmental maximum prices. The 1917–18 wage scale continued in operation.

June, 1918.—This period followed the reduction made by the Fuel Administration of 10 cents per ton, effective May 25, 1918, in the maximum prices for the district. Effective June 22, 1918, the Fuel Administration made a change in the existing maximum prices for the district.

July–December, 1918.—Throughout this period the official maximum prices remained unchanged, and the 1917–18 wage scale continued in effect.

TABLE 109.—*Revised costs and sales realizations of operators in the Lignite district of Texas, August, 1917–December, 1918.*

Period.	Number of operators.	Production.	Total, f. o. b. mine cost per ton.	Sales realization per ton.	Margin per ton.
		Tons.			
August, 1917	20	83,545	$0.80	$0.92	$0.12
September–October, 1917	20	173,780	.85	.97	.12
November–December, 1917	20	172,117	.90	1.06	.16
January–February, 1918	14	148,415	.92	1.19	.27
March, 1918	14	55,585	1.06	1.18	.12
April–May, 1918	14	117,901	1.05	1.18	.13
June, 1918	14	63,184	1.04	1.25	.21
July–December, 1918	14	421,193	1.16	1.51	.35

On August 21, 1917, the Government first fixed prices under the Lever Act. The prices fixed by Executive order for the sale of coal not then under contract in this district on August 21, 1917, were as follows: Run of mine, $2.65; prepared sizes, $2.90; slack, $2.40. The average proportions which these three classes of coal formed of the total output, based on actual returns for all operators in this district who reported to the Federal Trade Commission during the period August–December, 1917, were as follows: Run of mine, 64 per cent; prepared sizes, 31 per cent; slack, 5 per cent. Had the entire output of the 20 operators been sold at the prices established August 21, 1917, it would have brought them a sales realization of $2.72 per ton. The 20 operators actually received during September–October, 1917, a sales realization of 97 cents per ton, which was 5 cents more than they received during August (92 cents per ton). The average total f. o. b. mine cost of the 20 operators was, for September–October, 1917, 85 cents per ton—an increase of 5 cents from that in August. Their average monthly tonnage was 86,890 tons—an increase over that in August (83,545 tons). Their margin during September–October was 12 cents per ton—the same as August.

Effective November 1, 1917, a 45-cent increase in the established maximum prices was allowed by Executive order to take care of an increase in the wage scale which went into effect at that time. The average f. o. b. mine cost of the 20 operators for November–December, 1917 (90 cents per ton), increased 5 cents over that for September–October, 1917. Their output changed little, averaging 86,059 tons per month. Their average sales realization for November–December, 1917, was $1.06 per ton (an increase of 9 cents), and their margin 16 cents per ton (an increase of 4 cents).

During January–February, 1918, the average total f. o. b. mine cost of the 14 operators who reported for the 12 months in 1918 was 92 cents per ton, their sales realization $1.19, and their margin 27 cents per ton. Effective March 5, 1918, the Fuel Administration

made a change in the existing maximum prices for the district. The new prices, including the November 1, 1917, price increase because of the wage increase, were as follows: Run of mine, $1.85; prepared sizes, $1.95; slack, $1.30. Applying to these prices the proportions (already stated) which these three classes of coal form of the total output, a sales realization of $1.85 per ton was possible had the entire output been sold at the maximum prices. The total f. o. b. mine cost of the 14 operators in March was $1.06 per ton—an increase of 14 cents over the average for January–February. Their output in March was 55,585 tons—a decrease from the average for January–February, which was 74,208 tons. The sales realization in March was $1.18 per ton—a decrease of 1 cent from January–February. The margin during March was 12 cents per ton—a decrease of 15 cents from January–February. The total f. o. b. mine cost of the 14 operators during April–May, 1918, was $1.05 per ton (a decrease of 1 cent from March), the sales realization was $1.18 (the same as March), and the margin 13 cents per ton (an increase of 1 cent). The production in April–May showed an increase, averaging 58,950 tons per month, as compared with 55,585 tons in March.

Effective May 25, 1918, the Fuel Administration made a reduction of 10 cents per ton in the existing maximum prices for this district. The 14 operators had in June, 1918, an average f. o. b. mine cost of $1.04 per ton, a decrease of 1 cent per ton from April–May. Their production increased to 63,184 tons. The average sales realization of the 14 operators for June, 1918, was $1.25 per ton (an increase of 7 cents over April–May), and their margin 21 cents per ton (an increase of 8 cents).

Effective June 22, 1918, the Fuel Administration made a change in the existing maximum prices for the district. The new prices, including the November 1, 1917, price increase because of the wage increase, were as follows: Run of mine, $2; prepared sizes, $2.20; slack, $1.45. Applying to these prices the proportions (already stated) which these three classes of coal form of the total output, a sales realization of $2.03 per ton was possible had the entire output been sold at the maximum prices. The average total f. o. b. mine cost of the 14 operators during July–December, 1918, was $1.16 per ton, an increase of 12 cents over that for June and 11 cents over the average for April–May. Their average output during the six-month period July–December, 1918, was 70,199 tons, an increase over that of June and April–May. The sales realization in July–December, 1918, was $1.51 per ton (an increase of 26 cents over June), and the margin was 35 cents per ton (an increase of 14 cents).

CHAPTER VIII.—COLORADO.

Part I. Introduction.

1. Definition of the various producing districts or fields.

The distribution of output between the various coal-producing districts in Colorado has been made in accordance with the kinds of coal included in those districts as defined by the Fuel Administration in its order, effective March 11, 1918. The output comprised in the different districts is as follows:

Domestic district includes bituminous domestic coal mined in the Walsenburg, Canon City, Routt, Garfield, Gunnison, Durango, Mesa, Pitkin, Montezuma, Delta, Montrose, and Rio Blanco districts.

Trinidad district includes bituminous steam coal mined in the Trinidad district.

Lignite district includes lignite coal mined in the Northern Field and El Paso districts.

The location of these districts is shown on the map of Colorado (facing p. 198).

2. General statistics of output.

The statistics in this section for coal produced in Colorado have been compiled from reports published by the United States Geological Survey.

The proportion which the output of Colorado has formed of the total bituminous coal output of the United States is as follows:

	Per cent.		Per cent.
1911	2.5	1915	1.9
1912	2.4	1916	2.1
1913	1.9	1917	2.3
1914	1.9	1918	2.1

The following statement shows the proportions which the output of the various districts formed of the State total:

Year.	Production.	Proportion of total produced in each district.		
		Domestic district.	Trinidad district.	Lignite district.
	Tons.	*Per cent.*	*Per cent.*	*Per cent.*
1911	10,157,383	42	40	18
1912	10,977,824	42	39	19
1913	9,232,510	43	37	20
1914	8,170,559	46	30	24
1915	8,624,980	49	30	21
1916	10,484,237	46	35	19
1917	12,483,336	48	32	20

The United States Geological Survey has collected information on the "average value per ton" for a long series of years. This average is obtained by dividing the total selling value by the total tonnage.[27]

The following table shows this information for 1911–1917:

TABLE 110.—*Production and average value, 1911–1917, by producing districts and State of Colorado.*

Year.	Domestic district.		Trinidad district.		Lignite district.		State.	
	Production.	Average value per ton.	Production.	Average value per ton.	Production.	Average value per ton.	Production.	Average value per ton.
	Tons.		*Tons.*		*Tons.*		*Tons.*	
1911	4,261,189	$1.67	4,079,002	$1.18	1,817,192	$1.55	10,157,383	$1.45
1912	4,637,644	1.68	4,311,711	1.26	2,028,469	1.54	10,977,824	1.49
1913	3,950,375	1.64	3,418,999	1.33	1,863,136	1.54	9,232,510	1.52
1914	3,779,717	1.80	2,440,886	1.55	1,949,956	1.54	8,170,559	1.66
1915	4,177,420	1.70	2,615,790	1.43	1,831,770	1.50	8,624,980	1.58
1916	4,764,210	1.81	3,699,155	1.42	2,020,872	1.54	10,484,237	1.62
1917	5,950,999	2.44	4,011,045	1.96	2,521,292	2.10	12,483,336	2.22

In its reports for 1916 and 1917 the Geological Survey published "average values" in more detail than in previous reports. The following table is compiled from statistics appearing in the 1916 and 1917 reports:

TABLE 111.—*Disposition of production and average values, by producing districts and State of Colorado, 1916–17.*

District.	Loaded at mines for shipment.				Sold to local trade and used by employees.			
	1916		1917		1916		1917	
	Production.	Average value per ton.	Production.	Average value per ton.	Production.	Average value per ton.	Production.	Average value per ton.
	Tons.		*Tons.*		*Tons.*		*Tons.*	
Domestic	4,239,874	$1.85	5,349,314	$2.50	182,001	$1.72	212,012	$2.34
Trinidad	2,031,560	1.50	2,074,199	2.12	45,687	1.56	136,817	2.28
Lignite	1,786,386	1.55	2,347,016	2.10	168,688	1.63	101,563	2.54
State	8,057,820	1.69	9,770,529	2.32	396,376	1.67	450,392	2.37

[27] "The value of coal given in this report is the realization value at the mine f. o. b. cars, and the average value per ton is the average realization price obtained by dividing the total value by the number of tons sold or produced. The coal used at the mine, the coal coked by the producing company, and the coal used in some other industry by the company operating the mine—an appreciable proportion of the whole—is never sold, and the value placed upon it is either an estimate or the figure at which it is carried on the books, either of which is supposedly based on what the coal would have brought if sold or what other fuel for the respective purpose would have cost if its purchase had been necessary. In other words, the values given represent returns to the operators for coal sold, plus estimated exchange value of that not sold. These figures do not necessarily show prices or even an average of the prices of coal at the mine." U. S. Geological Survey (Mineral Resources of the United States, 1917. Part II, p. 952).

COLORADO

BITUMINOUS AND LIGNITE COAL FIELDS AND PRODUCING DISTRICTS

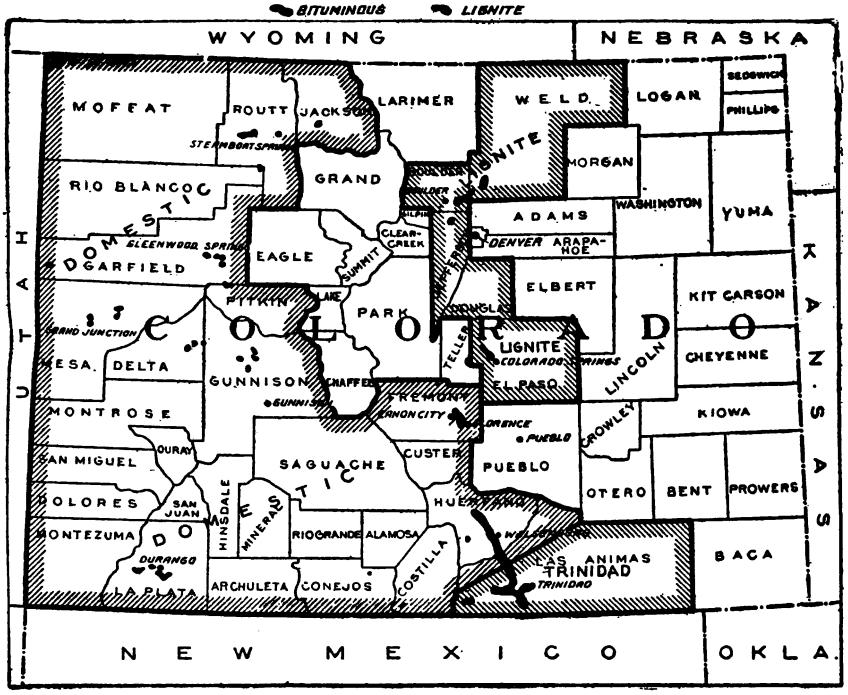


TABLE 111.—*Disposition of production and average values, by producing districts and State of Colorado, 1916–17*—Continued.

District.	Used at mines for steam and heat.				Made into coke at mines.				Total.			
	1916		1917		1916		1917		1916		1917	
	Production.	Average value per ton.	Production.	Average value per ton.	Production.	Average value per ton.	Production.	Average value per ton.	Production.	Average value per ton.	Production.	Average value per ton.
	Tons.		*Tons.*		*Tons.*		*Tons.*		*Tons.*		*Tons.*	
Domestic	126,287	$1.11	146,289	$1.60	216,048	$1.41	243,384	$1.78	4,764,210	$1.81	5,950,999	$2.44
Trinidad	79,399	1.34	85,490	1.43	1,542,509	1.32	1,714,539	1.76	3,699,155	1.42	4,011,045	1.96
Lignite	65,798	1.02	72,713	1.66	.....	.....	.....	.....	2,020,872	1.54	2,521,292	2.10
State	271,484	1.16	304,492	1.57	1,758,557	1.33	1,957,923	1.77	10,484,237	1.62	12,483,336	2.22

3. Character of the consumption of Colorado coal.

As is the case in many of the coal fields west of the Middle Atlantic States, a considerable portion of the output of bituminous coal in Colorado goes into domestic consumption. The proportion thus used varies from district to district, and is influenced partly by the nature of the coal, partly by the availability of substitutes, and partly by the extent of preparation given the coal for the purpose of adapting it to domestic use.

An analysis of the statistics of percentage of sizes produced by the Colorado mines, as compiled from the report of the Colorado State Inspector of Coal Mines for the calendar year 1918, is presented in the following statement:

District.	Mine run.		Lump.		Egg.	
	Tons.	*Per cent.*	*Tons.*	*Per cent.*	*Tons.*	*Per cent.*
Domestic	1,858,939	31.0	2,160,186	35.8	35,932	0.5
Trinidad	1,961,150	47.9	697,962	17.1	.....	.....
Lignite	1,008,588	39.9	828,611	32.7	.....	.....
Total	4,828,677	38.2	3,686,759	29.1	35,932	.3

District.	Nut.		Pea.		Slack.		Total.
	Tons.	*Per cent.*	*Tons.*	*Per cent.*	*Tons.*	*Per cent.*	*Tons.*
Domestic	701,913	11.6	80,813	1.3	1,197,022	19.8	6,034,805
Trinidad	133,206	3.2	12,281	.3	1,287,351	31.5	4,091,950
Lignite	47,556	1.9	846	.0	645,699	25.5	2,531,300
Total	882,675	7.0	93,940	.7	3,130,072	24.7	12,658,055

The Domestic district produced about 81 per cent of the total State tonnage of egg, nut, and pea sizes. These sizes are the ones principally used in domestic consumption.

The exact extent to which the coal from this State enters into domestic use is not definitely ascertainable from any figures at present

available. In the 1915 report of the United States Geological Survey[28] some statistics of the distribution of bituminous coal by classes of consumers, for Colorado, are shown. From these the percentages of consumption shown in the following statement have been compiled:

	Per cent.
Railroad	27.7
Coke	11.9
Gas	1.2
Domestic and small steam trade	27.3
Industrial steam trade	27.4
Exported	1.1
Mine fuels	3.4
Total output (tons)	8,624,980

The following statistics of distribution of shipments of bituminous coal, by classes of consignees, August 3, 1918, to February 1, 1919, are taken from an unpublished manuscript of the Geological Survey and are published by permission of that bureau:

	Per cent.
Railroad fuel	23.5
United States Government	.3
State and county institutions	.8
Public utilities, gas and electric	6.9
Retail dealers	40.1
Industries, including iron and steel	28.4
	100.0

This use of coal for domestic consumption introduces, to a greater or less extent, changes in the character of the seasonal demand. In Report No. 2, on Pennsylvania anthracite, the commission pointed out the wide differences between the character of the demand for coal for domestic consumption and the demand for industrial use. If the coal is of a nature which can be stored without undue fire risk, and if the domestic consumer can be induced to buy his coal during the summer, the domestic demand has a less seasonal character than where such conditions do not exist. Despite the marked seasonal fluctuations the annual domestic demand is likely to be a fairly constant quantity from year to year. On the other hand, the industrial demand for coal, while not always subject to such extreme seasonal fluctuations as that of coal for domestic use, is likely to vary to a much greater extent from year to year, influenced as it is primarily by periods of industrial prosperity or depression.

[28] Mineral Resources of the United States, 1915. Part II, pp. 471–472.

Part II.—1918 costs and sales realizations.

1. Number and extent of operations covered.

The 1918 production of the 91 operators in Colorado from whom cost reports were obtained by the commission was as follows:

	Tons.	Per cent.
Domestic district:		
41 operators from whom costs were obtained for 12 months	5,586,051	92.1
15 operators from whom costs were obtained for less than the full 12 months (actual tonnage reported 301,794 tons) estimated yearly tonnage	477,876	7.9
Total	6,063,927	100.0
Trinidad district:		
14 operators from whom costs were obtained for 12 months	3,816,975	97.4
2 operators from whom costs were obtained for less than the full 12 months (actual tonnage reported 88,545 tons) estimated yearly tonnage	102,348	2.6
Total	3,919,323	100.0
Lignite district:		
15 operators from whom costs were obtained for 12 months	2,264,972	93.2
1 operator from whom costs were obtained for 12 months, but which were excluded for certain reasons	7,358	.3
3 operators from whom costs were obtained for less than the full 12 months (actual tonnage reported 95,743 tons) estimated yearly tonnage	157,824	6.5
Total	2,430,154	100.0
State:		
70 operators from whom costs were obtained for 12 months	11,667,998	94.0
1 operator from whom costs were obtained for 12 months, but which were excluded for certain reasons	7,358	.1
20 operators from whom costs were obtained for less than the full 12 months (actual tonnage reported 483,082 tons) estimated yearly tonnage	738,048	5.9
Total	12,413,404	100.0

The above figures are shown, *inclusive* of power-house fuel, for comparison with the United States Geological Survey statistics. The total output of the 70 operators from whom costs were obtained for 12 months was, *exclusive* of power-house fuel, 11,373,165 tons.

According to the statistics issued by the Geological Survey the output of Colorado during 1918 was 12,407,571 tons, of which 311,009 tons were used at the mine for steam and heat. The commission obtained cost information on 12,158,438 tons produced in 1918 (including power-house fuel), forming 97 per cent of the total as reported by the Survey. It publishes in this report cost information on 11,373,165 tons of commercial production, which is 94 per cent of the output reported by the Survey after exclusion of the mine fuel.

2. Classification of producers by number of mines operated.

The costs of the 70 operators shown in the tabulation for Colorado cover the output of 114 mines. The table following shows the number of mines operated by the different producers.

TABLE 112. *Number of mines operated by different producers in Colorado.*

Number of mines run by each operator.	Number of operators.	Proportion of total number.	Production tonnage, 1918.	Proportion of total production.
Domestic district:		*Per cent.*	*Tons.*	*Per cent.*
1 mine	38	92.8	3,127,918	57.6
2 mines	1	2.4	181,927	3.4
4 mines	1	2.4	115,602	2.1
13 mines	1	2.4	2,002,181	36.9
Total (number of mines, 57)	41	100.0	5,427,628	100.0
Trinidad district:				
1 mine	9	64.4	486,318	13.0
2 mines	2	14.3	196,962	5.2
3 mines	1	7.1	243,070	6.5
6 mines	1	7.1	720,492	19.2
9 mines	1	7.1	2,103,835	56.1
Total (number of mines, 31)	14	100.0	3,750,677	100.0
Lignite district:				
1 mine	12	80.0	918,251	41.8
2 mines	2	13.3	394,562	18.0
10 mines	1	6.7	882,047	40.2
Total (number of mines, 26)	15	100.0	2,194,860	100.0
State:				
1 mine	59	84.4	4,532,487	39.9
2 mines	5	7.2	773,451	6.8
3 mines	1	1.4	243,070	2.1
4 mines	1	1.4	115,602	1.0
6 mines	1	1.4	720,492	6.3
9 mines	1	1.4	2,103,835	18.5
10 mines	1	1.4	882,047	7.8
13 mines	1	1.4	2,002,181	17.6
Total (number of mines, 114)	70	100.0	11,373,165	100.0

It will be seen that in the State 59 producers (84 per cent of the total number shown in the table) operated only one mine each and produced about 40 per cent of the output. The following statement shows the average number of mines operated by a producer, and the average production per mine operated by one-mine operators and by operators of two or more mines, for each district and for the State of Colorado:

District.	Average number of mines operated by a producer.	Average production per mine operated by—		
		One-mine operators.	Operators of two or more mines.	All operators combined.
	Mines.	*Tons.*	*Tons.*	*Tons.*
Domestic	1.4	82,314	121,037	95,222
Trinidad	2.2	54,035	148,380	120,990
Lignite	1.7	76,521	91,186	84,418
State	1.6	76,822	124,376	99,765

The number and size of mines in Colorado are shown in further detail in the report for 1917 of the United States Geological Survey, from which the following statistics are derived:[29]

Annual output of mines (tons).	Mines.		Tonnage.	
	Number.	Proportion of total in State.	Average production per mine.	Proportion of total State output.
		Per cent.	*Tons.*	*Per cent.*
200,000 and over	16	6.3	289,334	37.1
100,000 to 199,999	24	9.5	148,943	28.6
50,000 to 99,999	33	13.0	73,262	19.4
10,000 to 49,999	60	23.7	26,696	12.8
Under 10,000	120	47.5	2,166	2.1
State	253	100.0	49,341	100.0

3. Classification of producers by size of output.

The 70 producers tabulated for Colorado are classified by size of their output in 1918, exclusive of power-house fuel, as follows:

TABLE 113.—*Classification of 70 Colorado operators by size of output.*

Production during 1918 (tons).	Number of operators.	Proportion of total number.	Tonnage produced, 1918.	Proportion of total production.
		Per cent.	*Tons.*	*Per cent.*
Domestic district:				
Under 50,000	21	51.2	624,337	11.5
50,000 to 99,999	8	19.5	567,364	10.4
100,000 to 499,999	11	26.8	2,233,746	41.2
500,000 tons and over	1	2.5	2,002,181	36.9
Total	41	100.0	5,427,628	100.0
Trinidad district:				
Under 50,000	6	42.9	229,863	6.1
50,000 to 99,999	3	21.4	184,054	4.9
100,000 to 499,999	3	21.4	512,433	13.7
500,000 tons and over	2	14.3	2,824,327	75.3
Total	14	100.0	3,750,677	100.0
Lignite district:				
Under 50,000	4	26.7	137,797	6.3
50,000 to 99,999	6	40.0	381,558	17.4
100,000 to 499,999	4	26.7	793,458	36.2
500,000 tons and over	1	6.6	882,047	40.1
Total	15	100.0	2,194,860	100.0
State:				
Under 50,000	31	44.3	991,997	8.7
50,000 to 99,999	17	24.3	1,132,976	10.0
100,000 to 499,999	18	25.7	3,539,637	31.1
500,000 tons and over	4	5.7	5,708,555	50.2
Total	70	100.0	11,373,165	100.0

If the 20 operators from whom costs were received for less than the full 12 months, and the one operator from whom costs were received but in unusable form, be considered, it would be found that

[29] Mineral Resources of the United States, 1917. Part II, pp. 947–948.

two operators had an estimated annual production of over 100,000 tons and one other operator had an estimated annual production of about 90,000 tons. The remaining 18 operators had an average estimated annual production of 22,070 tons. Had returns for the full 12 months been available from them, it would be found that about 54 per cent of the operators produced about 12 per cent of the tonnage.

4. The 1918 costs and sales realizations shown by districts.

There was no change in the official wage scale for bituminous coal miners in Colorado during 1918. Therefore, the labor costs per ton for the period were principally affected by changes in the production tonnage and not by changes in the rate of wages paid labor. The effect of decreased production in increasing labor costs can be clearly seen on Diagrams X to XII (opposite p. 208) and Charts 24 and 25 (opposite p. 210).

Tables 55 to 69 in the appendix to this report (see pp. 410–426) show the costs and the sales realizations arranged from low to high in 10-cent groupings for each period shown. Throughout the tables for a given district the costs are shown for the same operators, but the costs of any given operator do not necessarily hold the same relative position in the 10-cent groups for each period. The shift of any operator in his relative position, from period to period, is generally slight.

The tables show, for each quarter and for the year as a whole, by 10-cent groupings, the tonnage produced at that cost, its per cent of the total production, the place of the group in the accumulated percentage, and the number of operators whose costs fell within each 10-cent group.

A summary of the significant facts brought out in Appendix, Tables 55 to 69, appears in the following tables, in which are compared the true average cost and sales realization, the range of 90 per cent of the output which had the lowest costs and sales realizations, and the extreme range for the entire output of the 70 operators:

TABLE 114.—*1918 quarterly and yearly revised costs and sales realization for 41 operators in Domestic district of the State of Colorado, showing averages and range for 90 per cent and for 100 per cent of total output.*

Period.	Costs per net ton.												Sales realization per net ton.		
	Labor.			Supplies.			General expense.			Total f. o. b. mine.					
	Average.	Range.		Average.	Range.		Average.	Range.		Average.	Range.		Average.	Range.	
		90 per cent output.	100 per cent output.		90 per cent output.	100 per cent output.		90 per cent output.	100 per cent output.		90 per cent output.	100 per cent output.		90 per cent output.	100 per cent output.
January-March	$1.74	$1.15-$2.07	$1.15-$4.35	$0.24	$0.02-$0.36	$0.02-$0.70	$0.37	$0.16-$0.61	$016-$0.95	$2.35	$1.50-$2.84	$1.50-$5.65	$3.07	$1.50-$3.63	$1.50-$4.12
April-June	1.71	1.16- 2.10	1.16- 3.99	.24	.03- .31	.03- 1.10	.36	.17- .57	.17- 1.87	2.31	1.42- 2.83	1.42- 6.35	2.76	1.48- 2.99	1.48- 5.04
July-September	1.73	1.28- 2.12	1.28- 3.10	.26	.03- .33	.03- .65	.36	.18- .51	.18- .87	2.35	1.51- 2.85	1.51- 4.22	3.01	1.50- 3.32	1.50- 4.86
October-December	1.85	1.34- 2.13	1.34- 3.76	.36	.02- .50	.02- 1.01	.43	.16- .69	.16- 1.05	2.64	1.70- 3.09	1.70- 5.57	3.00	1.78- 3.31	1.78- 4.30
Year	1.75	1.29- 2.11	1.29- 3.19	.27	.04- .36	.04- .68	.38	.16- .56	.16- .85	2.40	1.53- 2.90	1.53- 4.43	2.96	1.57- 3.30	1.57- 4.26

TABLE 115.—*1918 quarterly and yearly revised costs and sales realization for 14 operators in Trinidad district of the State of Colorado, showing averages and range for 90 per cent and for 100 per cent of total output.*

Period.	Costs per net ton.												Sales realization per net ton.		
	Labor.			Supplies.			General expense.			Total f. o. b. mine.					
	Average.	Range.		Average.	Range.		Average.	Range.		Average.	Range.		Average.	Range.	
		90 per cent output.	100 per cent output.		90 per cent output.	100 per cent output.		90 per cent output.	100 per cent output.		90 per cent output.	100 per cent output.		90 per cent output.	100 per cent output.
January-March	$1.60	$1.30-$1.64	$1.30-$2.28	0.22	$0.09-$0.24	$0.09-$0.50	$0.33	$0.25-$0.47	$0.25-$1.04	$2.15	$1.82-$2.29	$1.82-$3.64	$2.54	$2.20-$3.14	$2.20-$3.17
April-June	1.61	1.21- 1.74	1.21- 2.34	.26	.14- .27	.14- .34	.35	.16- .47	.16- .69	2.22	1.95- 2.38	1.95- 3.09	2.47	2.29- 2.78	2.29- 2.84
July-September	1.61	.86- 1.66	.86- 2.23	.26	.15- .28	.15- .58	.37	.23- .48	.23- .70	2.24	1.38- 2.33	1.38- 3.40	2.44	2.29- 2.83	2.29- 3.25
October-December	1.69	1.45- 1.74	1.45- 2.57	.32	.21- .35	.21- .48	.40	.16- .51	.16- .90	2.41	2.28- 2.53	2.28- 3.61	2.52	2.36- 2.69	2.36- 3.37
Year	1.62	1.22- 1.66	1.22- 2.20	.26	.15- .29	.15- .37	.37	.20- .50	.20- .79	2.25	1.95- 2.32	1.95-3.00	2.49	2.31-2.90	2.31-3.16

TABLE 116.—*1918 quarterly and yearly revised costs and sales realization for 15 operators in Lignite district of the State of Colorado, showing averages and range for 90 per cent and for 100 per cent of total output.*

Period.	Costs per net ton.												Sales realization per net ton.		
	Labor.			Supplies.			General expense.			Total f. o. b. mine.					
	Average.	Range. 90 per cent output.	Range. 100 per cent output.	Average.	Range. 90 per cent output.	Range. 100 per cent output.	Average.	Range. 90 per cent output.	Range. 100 per cent output.	Average.	Range. 90 per cent output.	Range. 100 per cent output.	Average.	Range. 90 per cent output.	Range. 100 per cent output.
January-March	$1.39	$1.00-$1.64	$1.00-$2.26	$0.18	$0.05-$0.21	$0.05-$0.26	$0.37	$0.20-$0.46	$0.20-$0.57	$1.94	$1.43-$2.35	$1.43-$2.97	$2.60	$1.87-$2.78	$1.87-$3.09
April-June	1.52	1.03- 1.89	1.03- 2.39	.22	.00- .35	.00- .51	.45	.26- .56	.26- .80	2.19	1.58- 2.73	1.58- 3.22	2.38	1.89- 2.48	1.89- 2.82
July-September	1.56	1.14- 1.97	1.14- 2.63	.24	.01- .34	.01- .59	.40	.23- .52	.23- .76	2.20	1.48- 2.64	1.48- 3.33	2.47	2.03- 2.58	2.03- 2.81
October-December	1.50	1.13- 1.76	1.13- 2.52	.22	.05- .34	.05- .43	.41	.23- .46	.23- .85	2.13	1.59- 2.51	1.59- 3.28	2.34	1.80- 2.58	1.80- 2.80
Year	1.49	1.10- 1.77	1.10- 2.44	.21	.06- .26	.06- .30	.40	.22- .50	.22- .72	2.10	1.52- 2.54	1.52- 3.16	2.46	1.89- 2.59	1.89-2.89

The following table of yearly averages is given for the sake of ready comparison of the different districts:

TABLE 117.—*Average costs and sales realizations of all Colorado districts for the year 1918.*

District.	Production.	Costs per ton.				Sales realization per ton.	Margin per ton.
		Labor.	Supplies.	General expense.	Total f. o. b. mine.		
	Tons.						
Domestic	5,427,628	$1.75	$0.27	$0.38	$2.40	$2.96	$0.56
Trinidad	3,750,677	1.62	.26	.37	2.25	2.49	.24
Lignite	2,194,860	1.49	.21	.40	2.10	2.46	.36

The labor cost of the Domestic district was 13 cents per ton higher than that of the Trinidad district, and 26 cents per ton higher than that of the Lignite district. This is due in a large degree to the difference in the thickness of seam mined, and to some extent also is attributable to the mining methods followed. As will be noted from the tabulation of thickness of seam (see Table 122, p. 212) about 48 per cent of the output of the Domestic district came from seams averaging under 4 feet thick, while but 23 per cent of the output of the Trinidad district and 9 per cent of that of the Lignite district came from such seams.

A part of the output of the Trinidad district of Colorado was coked at the mines by the operators producing the coal, and was not sold commercially as coal. The costs of mining the coal which was coked has been included in the figures shown in this report with the costs of the output sold as coal. As far as possible the commission excluded all costs which were incurred in the coking of the coal, but there were probably certain expenses of this nature which were reported combined with the costs of mining and preparing the commercial output, and for which there was not available the information for a proper separation. The realization on the coke, however, does not enter into the sales realization figures in this report, which show merely the actual receipts from commercial sales of coal. The table following shows a comparison of the costs and margins for this district when the output of operators who coked 20 per cent or more of their product at the mines is excluded and when that output is included.

TABLE 118.—*Revised costs and sales realizations for the Trinidad district of Colorado, including and excluding output of operators who coked 20 per cent or more of their output.*

	Production in 1918.	Costs per ton.				Sales realization per ton.	Margin per ton.
		Labor.	Supplies.	General expense.	Total f. o. b. mine.		
	Tons.						
2 operators who coked 20 per cent or more of their output but not all...	2,241,481	$1.65	$0.26	$0.30	$2.21	$2.31	$0.10
12 operators who coked less than 20 per cent of their output or who did no coking.....	1,509,196	1.59	.26	.46	2.31	2.62	.31
All operators.....	3,750,677	1.62	.26	.37	2.25	2.49	.24

The two operators who coked 20 per cent or more of their output had an average total f. o. b. mine cost of 10 cents per ton less than that of the remaining 12 operators in the district. The average sales realization of the two operators on that of their output sold as coal was 31 cents lower than that of the other 12 operators.

In the Domestic district one operator, whose output was about 28,000 tons in 1918, coked his entire output.

The following statistics of hand and machine mined output of Colorado mines have been compiled from the report of the Colorado State Inspector of Coal Mines for the calendar year 1918:

TABLE 119.—*Distribution of output pick mined only, machine mined only, and both pick and machine mined, from State report for 1918.*

District.	Pick mined only.			Machine mined only.			Both pick and machine mined.			Total.	
	Number of mines.	Output.	Proportion of district.	Number of mines.	Output.	Proportion of district.	Number of mines.	Output.	Proportion of district.	Number of mines.	Output.
		Tons.	*P. ct.*		*Tons.*	*P. ct.*		*Tons.*	*P. ct.*		*Tons.*
Domestic....	72	2,333,784	39.2	10	549,236	9.2	29	3,077,015	51.6	111	5,960,035
Trinidad....	51	1,560,691	38.6	1	10,393	.3	18	2,471,239	61.1	70	4,042,323
Lignite.....	31	236,762	8.9	10	295,052	11.1	26	2,123,883	80.0	67	2,655,697
Total..	154	4,131,237	32.6	21	854,681	6.8	73	7,672,137	60.6	248	12,658,055

5. Relation of the costs to the sales realizations.

The following table shows the distribution, by quarters and for the year 1918, between the items of labor, supplies, general expense, and margin of each dollar of sales realization received by the operator:

BITUMINOUS COAL—COLORADO

DIAGRAM X

Domestic District

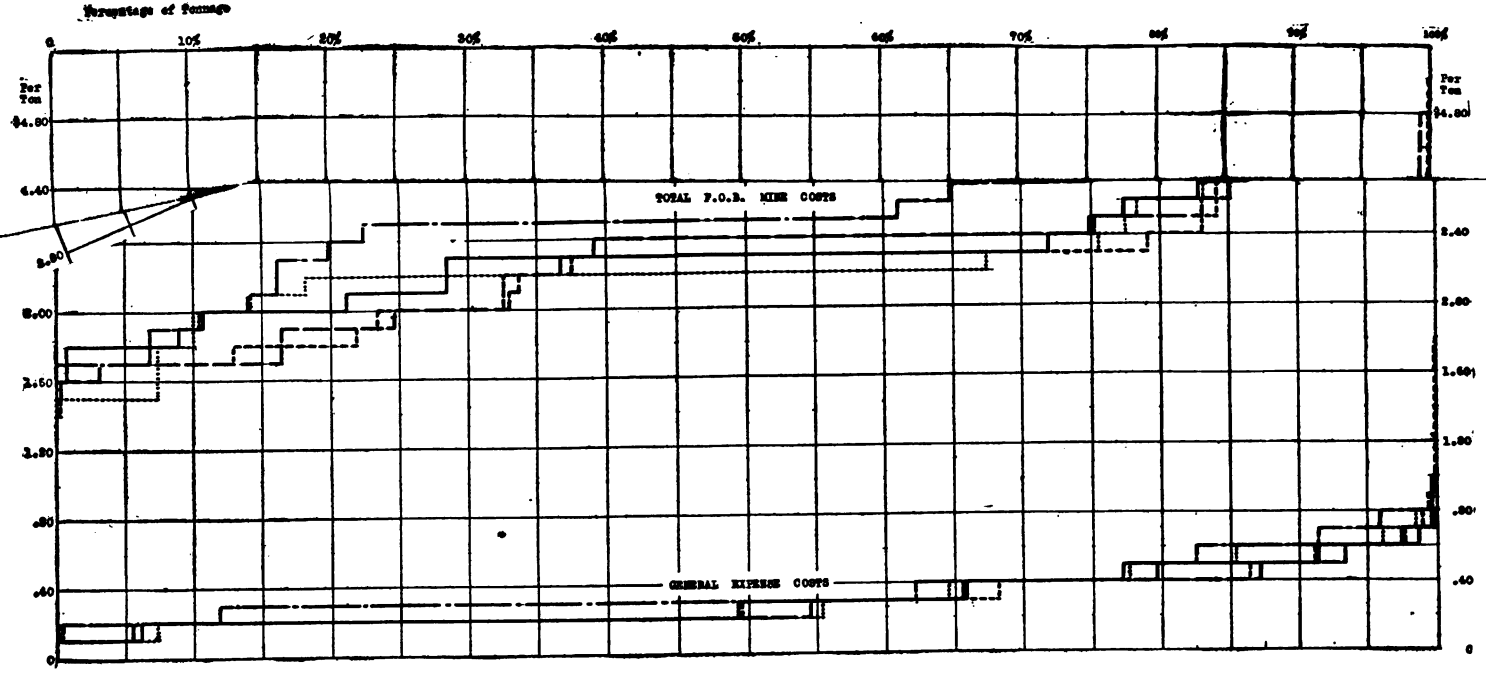


TABLE 120.—*Distribution of the amount paid by the purchaser between the various principal costs and the margin, based on each dollar of sales realization, for the Domestic, the Trinidad, and the Lignite districts in Colorado, 1918, by quarters and for the year.*

Period.	Costs.				Margin.
	Labor.	Supplies.	General expense.	Total f. o. b. mine.	
Domestic district:	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*
January-March	57	8	12	77	23
April-June	62	9	13	84	16
July-September	57	9	12	78	22
October-December	62	12	14	88	12
Year	59	9	13	81	19
Trinidad district:					
January-March	63	9	13	85	15
April-June	65	11	14	90	10
July-September	66	11	15	92	8
October-December	67	13	16	96	4
Year	65	10	15	90	10
Lignite district:					
January-March	54	7	14	75	25
April-June	64	9	19	92	8
July-September	63	10	16	89	11
October-December	64	9	18	91	9
Year	61	8	16	85	15

These facts are shown in graphic form in Chart 26 (facing p. 210).

6. *Comparison of claimed and revised costs.*

The foregoing tables present costs which have in some cases been revised by the accountants of the commission from the claimed figures reported on the original schedules by the operators. Tables 70 to 72 in the Appendix to this report show the claimed 1918 costs, compiled in all cases directly from the figures submitted by the operators.

The changes brought about through the revision in the average costs for the year 1918 for the 70 operators were as follows:

Item.	Claimed costs.	Revised costs.	Increase (I) or decrease (D) due to revision.
Domestic district:			
Production (tons)	5,586,051	5,427,628	[1] 158,423 (D)
Labor ... per ton	$1.70	$1.75	$0.05 (I)
Supplies ... do	.33	.27	.06 (D)
General expense ... do	.44	.38	.06 (D)
Total f. o. b. mine ... do	2.47	2.40	.07 (D)
Trinidad district:			
Production (tons)	3,816,975	3,750,677	[1] 66,298 (D)
Labor ... per ton	$1.60	$1.62	$0.02 (I)
Supplies ... do	.29	.26	.03 (D)
General expense ... do	.41	.37	.04 (D)
Total f. o. b. mine ... do	2.30	2.25	.05 (D)

[1] Due to exclusion of power-house fuel.

Item.	Claimed costs.	Revised costs.	Increase (I) or decrease (D) due to revision.
Lignite district:			
Production (tons)	2,264,972	2,194,860	[1] 70,112 (D)
Labor ... per ton	$1.44	$1.49	$0.05 (I)
Supplies ... do	.28	.21	.07 (D)
General expense ... do	.45	.40	.05 (D)
Total f. o. b. mine ... do	2.17	2.10	.07 (D)
State:			
Production (tons)	11,667,998	11,373,165	[1] 294,833 (D)
Labor ... per ton	$1.62	$1.66	$0.04 (I)
Supplies ... do	.31	.26	.05 (D)
General expense ... do	.43	.37	.06 (D)
Total f. o. b. mine ... do	2.36	2.29	.07 (D)

[1] Due to exclusion of power-house fuel.

The increase of 4 cents in the average State revised labor cost over the claimed is caused by the use of the revised production tonnage as a divisor. The total claimed labor cost was $18,869,294, and the total revised labor cost was $18,869,296.

The costs claimed by some of the operators were obviously open to question as to their accuracy. Such operators were required by the commision to furnish detailed information in support of their claimed costs. The examination of such detailed information revealed the fact that they had often included in their general expense costs such items as contingent reserves, etc. In some cases the costs had been inflated principally through the inclusion of officers' salaries, which were far in excess of those paid in neighboring operations of similar size, and by excessive charges for the items of depreciation and depletion, which had not been computed in accordance with the rule prescribed in the instructions of the commission.

The chief instances of revision affected three operators and involved less than 2 per cent of the total tonnage of the State.

7. *1918 costs shown by thickness of seam.*

About 60 per cent of the output of Colorado came from 11 producers who operated more than one mine. Most of these producers did not report the costs of each mine separately. In order to include them in a tabulation to show costs by thickness of seam it was necessary to use the average of the seams mined by them. This has led to the inclusion of data in the tabulation for the 70 operators, which to a slight extent vitiates its scientific value, since it is not known whether equal tonnage was derived from mines which had seams above or below the average thickness. The tabulation by thickness of seam for the 70 operators follows:

TABLE 121.—*Seam tabulation of revised costs for 70 operators in Colorado.*

Thickness of seam.	Number of operators.	Production, 1918.	Costs per ton.			
			Labor.	Supplies.	General expense.	Total f. o. b. mine.
Domestic district:		*Tons.*				
36 to 47 inches [1]	11	2,618,829	$1.89	$0.30	$0.33	$2.52
48 to 59 inches	8	480,565	1.87	.41	.34	2.62
60 to 71 inches	4	101,054	2.13	.32	.50	2.95
72 to 83 inches	5	593,923	1.55	.20	.39	2.14
84 to 95 inches	3	121,529	2.03	.25	.63	2.91
96 to 107 inches	4	515,150	1.62	.21	.52	2.35
120 to 131 inches	3	484,153	1.49	.21	.48	2.18
156 to 167 inches [2]	3	512,425	1.45	.21	.29	1.91
Total	41	5,427,628	1.75	.27	.38	2.40
Trinidad district:						
36 to 47 inches	4	862,088	1.53	.28	.45	2.26
48 to 59 inches	2	94,945	2.04	.26	.49	2.79
60 to 71 inches [3]	8	2,793,644	1.64	.26	.33	2.23
Total	14	3,750,677	1.62	.27	.36	2.25
Lignite district:						
48 to 59 inches [4]	3	281,116	1.44	.19	.30	1.93
60 to 71 inches	2	114,422	1.65	.26	.39	2.30
72 to 83 inches	4	618,191	1.52	.22	.39	2.13
84 to 95 inches	2	178,391	1.61	.26	.60	2.47
96 to 107 inches [5]	4	1,002,740	1.43	.21	.40	2.04
Total	15	2,194,860	1.49	.21	.40	2.10
State:						
24 to 35 inches	2	216,657	1.27	.19	.29	1.75
36 to 47 inches	14	3,462,520	1.80	.29	.36	2.45
48 to 59 inches	12	658,366	1.93	.36	.37	2.66
60 to 71 inches	13	2,961,650	1.66	.25	.34	2.25
72 to 83 inches	10	1,259,584	1.54	.22	.39	2.15
84 to 95 inches	5	299,920	1.79	.25	.61	2.65
96 to 107 inches	7	1,472,232	1.51	.21	.43	2.15
120 to 131 inches	3	484,153	1.49	.21	.48	2.18
156 to 167 inches [6]	4	558,083	1.40	.20	.31	1.91
Total	70	11,373,165	1.66	.26	.37	2.29

[1] Includes 1 operator with 32-inch seam.
[2] Includes 1 operator with 303-inch seam.
[3] Includes 1 operator with 75-inch seam.
[4] Includes one operator with 33-inch seam.
[5] Includes 1 operator with 325-inch seam.
[6] Includes 1 operator with 303-inch seam and 1 operator with 325-inch seam.

In order to eliminate the effect of the inclusion of average thicknesses, where producers operated two or more mines, a seam tabulation has been made of the 59 one-mine operators. It will be noted from the following table that the tonnage of the 59 one-mine operators was somewhat more regularly distributed among the different thicknesses of seam than was the case with the 70 operators:

TABLE 122.—*Distribution, between seams, of output of 70 operators and 59 one-mine operators in Colorado.*

Thickness of seam.	41 operators, producing 5,427,628 tons in 1918.		38 operators, producing 3,127,918 tons in 1918.	
	Number of operators.	Per cent of output.	Number of operators.	Per cent of output.
Domestic district:				
24 to 35 inches	1	0.4	1	0.6
36 to 47 inches	10	47.9	9	19.1
48 to 59 inches	8	8.9	7	9.5
60 to 71 inches	4	1.9	4	3.2
72 to 83 inches	5	10.9	5	19.0
84 to 95 inches	3	2.2	3	3.9
96 to 107 inches	4	9.5	4	16.5
120 to 131 inches	3	8.9	3	15.5
156 to 167 inches	2	7.3	2	12.7
300 to 311 inches	1	2.1	.....	.....
Total	41	100.0	38	100.0
	14 operators, producing 3,750,677 tons in 1918.		9 operators, producing 486,318 tons in 1918.	
Trinidad district:				
36 to 47 inches	4	23.0	3	29.1
48 to 59 inches	2	2.5	1	7.3
60 to 71 inches	7	73.2	4	53.9
72 to 83 inches	1	1.3	1	9.7
Total	14	100.0	9	100.0
	15 operators, producing 2,194,860 tons in 1918.		12 operators, producing 918,251 tons in 1918.	
Lignite district:				
24 to 35 inches	1	9.0	1	21.6
36 to 47 inches	.....	.....	.....	.....
48 to 59 inches	2	3.8	2	9.0
60 to 71 inches	2	5.2	2	12.5
72 to 83 inches	4	28.2	3	27.0
84 to 95 inches	2	8.1	2	19.4
96 to 107 inches	3	43.6	1	5.5
324 to 335 inches	1	2.1	1	5.0
Total	15	100.0	12	100.0
	70 operators, producing 11,373,165 tons in 1918.		59 operators, producing 4,532,487 tons in 1918.	
State:				
24 to 35 inches	2	1.9	2	4.8
36 to 47 inches	14	30.4	12	16.3
48 to 59 inches	12	5.8	10	9.2
60 to 71 inches	13	26.1	10	10.5
72 to 83 inches	10	11.1	9	19.6
84 to 95 inches	5	2.6	5	6.6
96 to 107 inches	7	12.9	5	12.5
120 to 131 inches	3	4.3	3	10.7
156 to 167 inches	2	3.5	2	8.8
300 to 311 inches	1	1.0	.....	.....
324 to 335 inches	1	.4	1	1.0
Total	70	100.0	59	100.0

The tabulation of cost, by thickness of seam, for the 59 one-mine operators follows:

TABLE 123.—*Seam tabulation of revised costs for 59 one-mine operators in Colorado.*

Thickness of seam.	Number of operators.	Production, 1918.	Costs per ton.			
			Labor.	Supplies.	General expense.	Total f. o. b. mine.
Domestic district:		*Tons.*				
36 to 47 inches [1]	10	616,648	$2.18	$0.36	$0.46	$3.00
48 to 59 inches	7	298,638	1.93	.40	.39	2.72
60 to 71 inches	4	101,054	2.13	.32	.50	2.95
72 to 83 inches	5	593,923	1.55	.20	.39	2.14
84 to 95 inches	3	121,529	2.03	.25	.63	2.91
96 to 107 inches	4	515,150	1.62	.21	.52	2.35
120 to 131 inches	3	484,153	1.49	.21	.48	2.18
156 to 167 inches	2	396,823	1.32	.20	.21	1.73
Total	38	3,127,918	1.72	.26	.43	2.41
Trinidad district:						
36 to 47 inches [2]	4	177,225	2.05	.24	.41	2.70
48 to 59 inches						
60 to 71 inches [3]	5	309,093	1.63	.26	.52	2.41
Total	9	486,318	1.78	.25	.48	2.51
Lignite district:						
48 to 59 inches [4]	3	281,116	1.45	.18	.30	1.93
60 to 71 inches	2	114,422	1.65	.26	.39	2.30
72 to 83 inches	3	284,045	1.70	.28	.41	2.39
84 to 95 inches	2	178,391	1.61	.26	.60	2.47
96 to 107 inches [5]	2	96,277	1.16	.14	.39	1.69
Total	12	918,251	1.54	.23	41	2.18
State:						
24 to 35 inches	2	216,657	1.27	.19	.29	1.75
36 to 47 inches	12	739,847	2.14	.34	.44	2.92
48 to 59 inches	10	417,123	1.99	.35	.40	2.74
60 to 71 inches	10	477,099	1.73	.26	.49	2.48
72 to 83 inches	9	889,438	1.60	.23	.40	2.23
84 to 95 inches	5	299,920	1.79	.25	.61	2.65
96 to 107 inches	5	565,769	1.57	.21	.50	2.28
120 to 131 inches	3	484,153	1.49	.21	.48	2.18
156 to 167 inches [5]	3	442,481	1.31	.18	.25	1.74
Total	59	4,532,487	1.69	.25	.43	2.37

[1] Includes 1 operator with 32-inch seam.
[2] Includes 1 operator with 48-inch seam.
[3] Includes 1 operator with 75-inch seam.
[4] Includes 1 operator with 33-inch seam.
[5] Includes 1 operator with 325-inch seam.

A summary of the principal facts relating to labor, supplies, and total f. o. b. mine cost of the 59 one-mine operators, arranged in comparative form for the districts and the State, is shown below:

Thickness of seam.	Domestic district.			Trinidad district.			Lignite district.			State.		
	Labor.	Supplies.	Total f. o. b. mine cost.	Labor.	Supplies	Total f. o. b. mine cost.	Labor.	Supplies.	Total f. o. b. mine cost.	Labor.	Supplies.	Total f. o. b. mine cost.
24 to 35 inches										$1.27	$0.19	$1.75
36 to 47 inches	$2.18	[1] $0.36	$3.00	$2.05	[2] $0.24	$2.70				2.14	.34	2.92
48 to 59 inches	1.93	.40	2.72				$1.45	[4] $0.18	$1.93	1.99	.35	2.74
60 to 71 inches	2.13	.32	2.95	1.63	[3] .26	2.41	1.65	.26	2.30	1.73	.26	2.48
72 to 83 inches	1.55	.20	2.14				1.70	.28	2.39	1.60	.23	2.23
84 to 95 inches	2.03	.25	2.91				1.61	.26	2.47	1.79	.25	2.65
96 to 107 inches	1.62	.21	2.35				1.16	[5] .14	1.69	1.57	.21	2.28
108 to 119 inches												
120 to 131 inches	1.49	.21	2.18							1.49	.21	2.18
132 to 143 inches												
144 to 155 inches												
156 to 167 inches	1.32	.20	1.73							1.31	.18	1.74
Total	1.72	.26	2.41	1.78	.25	2.51	1.54	.23	2.18	1.69	.25	2.37

[1] Includes 1 operator with 32-inch seam.
[2] Includes 1 operator with 48-inch seam.
[3] Includes 1 operator with 75-inch seam.
[4] Includes 1 operator with 33-inch seam.
[5] Includes 1 operator with 325-inch seam.

reports covering the last five months of 1917. Nearly every one of the operators that appears in the 1917 appears also in the 1918 figures, but there are a few unimportant exceptions, which do not affect the general comparability of the 1917 figures with those of 1918. The average total f. o. b. mine costs, sales realizations, and margins of about 94 per cent of the entire output mined in the districts are presented for these districts.

2. The revised costs, sales realizations, and production figures, and analyses of the fluctuations, by districts, August, 1917–December, 1918.

DOMESTIC DISTRICT.

The significance of the 11 periods selected for presenting the figures for August. 1917–December, 1918. for the Domestic district is as follows:

August, 1917.—The greater part of this month was prior to the fixing by Executive order of August 21, 1917, of maximum prices for bituminous coal not sold under contracts made prior to that date and the establishment of a fuel administration to regulate the fuel situation.

September, 1917.—This period directly followed the fixing by Executive order of August 21, 1917, of maximum prices for bituminous coal not sold under contracts made prior to that date and the establishment of a fuel administration to regulate the fuel situation. The 1917 wage scale continued in operation during this month.

October, 1917.—This period followed the change in maximum prices, effective October 1, 1917, made by the Fuel Administration in the maximum prices established for this district.

November–December, 1917.—This period directly followed the increase in maximum prices allowed by Executive order in consequence of the adoption of a new wage scale (1917–18) which was higher than that adopted earlier in 1917.

January–February, 1918.—During this period the prices fixed November 1, 1917, continued. The number of operators in the district from whom 1918 figures were obtained was less than that from whom August–December, 1917, figures were available.

March, 1918.—Effective March 11, 1918, the Fuel Administration established new maximum prices for this district.

April, 1918.—During April the base price effective March 11, 1918, was subject, on prepared sizes, to a summer reduction of 70 cents per ton from the base.

May, 1918.—During May the base price effective March 11, 1918, was subject, on prepared sizes, to a summer reduction of 50 cents per ton. Effective May 25, 1918, the Fuel Administration made a reduc-

tion of 10 cents per ton in the existing maximum prices for the district.

June, 1918.—During June the base price, effective March 11, 1918, and modified by the Fuel Administration's order of May 25, 1918, was subject, on prepared sizes, to a summer reduction of 35 cents per ton.

July, 1918.—During July the base price, effective March 11, 1918, and modified by the Fuel Administration's order of May 25, 1918, was subject, on prepared sizes, to a summer reduction of 15 cents per ton.

August–December, 1918.—Throughout this period the base prices, effective March 11, 1918, and modified by the Fuel Administration's order of May 25, 1918, were in effect.

TABLE 125.—*Revised costs and sales realizations of operators in the Domestic district of Colorado, August, 1917–December, 1918.*

Period.	Number of operators.	Production.	Total f. o. b. mine cost per ton.	Sales realization per ton.	Margin per ton.
		Tons.			
August, 1917	52	492,285	$1.90	$2.48	$0.58
September, 1917	52	443,998	1.91	2.24	.33
October, 1917	52	429,104	2.01	2.72	.71
November–December, 1917	52	852,352	2.32	3.12	.80
January–February, 1918	41	868,477	2.36	3.19	.83
March, 1918	41	437,406	2.32	2.84	.52
April, 1918	41	414,552	2.38	2.64	.26
May, 1918	41	513,909	2.23	2.78	.55
June, 1918	41	488,534	2.33	2.83	.50
July, 1918	41	510,704	2.31	2.93	.62
August–December, 1918	41	2,194,046	2.52	3.03	.51

On August 21, 1917, the Government first fixed prices under the Lever Act. The prices fixed by Executive order for the sale of coal not then under contract in this district on August 21, 1917, were as follows: Run of mine, $2.45; prepared sizes, $2.70; slack, $2.20. The average proportions which these three classes of coal formed of the total output, based on actual returns for all operators in this district who reported to the Federal Trade Commission during the period August–December, 1917, were as follows: Run of mine, 26 per cent; prepared sizes, 53 per cent; slack, 21 per cent. Had the entire output of the 52 operators been sold at the prices established August 21, 1917, it would have brought them a sales realization of $2.53 per ton. The 52 operators actually received, during September, 1917, a sales realization of $2.24 per ton. The average total f. o. b. mine cost of the 52 operators was, for September, 1917, $1.91 per ton (an increase of 1 cent over that in August), while their tonnage was 443,998 tons (a decrease from that in August—492,285 tons). Their margin during September was 33 cents per ton—a decrease of 25 cents from August.

Effective October 1, 1917, the Fuel Administration made a change in the existing maximum prices for the district. The new prices were as follows: Run of mine, $3; prepared sizes, $4; slack, $1.50. Applying to these prices the proportions (already stated), which these three classes of coal form of the total output, a sales realization of $3.22 per ton was possible had the entire output been sold at the maximum prices. The total f. o. b. mine cost of the 52 operators during October was $2.01 per ton—an increase of 10 cents over that of September. The production in October showed a decrease, being 429,104 tons. The sales realization was $2.72 (an increase of 48 cents), and the margin 71 cents per ton (an increase of 38 cents). These latter increases are principally attributable to the increased official prices.

Effective November 1, 1917, a 45-cent increase in the established maximum prices was allowed by Executive order, to take care of an increase in the wage scale which went into effect at that time. The average f. o. b. mine cost of the 52 operators for November–December, 1917 ($2.32 per ton), increased 31 cents over that for September–October, 1917, most of this increase being attributable to the higher wage scale, and a part to the decrease of the output to an average of 426,176 tons per month. Their average sales realization for November–December, 1917, was $3.12 per ton (an increase of 40 cents), and their margin 80 cents per ton (an increase of 9 cents).

During January–February, 1918, the average total f. o. b. mine cost of the 41 operators who reported for the 12 months in 1918 was $2.36 per ton, their sales realization $3.19, and their margin 83 cents per ton.

Effective March 11, 1918, new maximum prices were fixed by the Fuel Administration for the district. The new prices, including the 45-cent increase effective November 1, 1917, because of the wage increase, were as follows: Run of mine, $2.70; prepared sizes, $3.95; slack or screenings, $1.70. The price on prepared sizes, however, was subject to the following summer reductions: April, 70 cents; May, 50 cents; June, 35 cents; July, 15 cents. On August 1, the base price named for prepared sizes in the March 11 order became effective. Applying the proportions of run of mine, prepared sizes and slack, already stated for this district, the 42 operators would have received, had they sold their entire output at the March base prices, a possible sales realization of $3.15 per ton. Their average total f. o. b. mine cost for March was $2.32 per ton—a decrease of 4 cents from the average of January–February, 1918. Their production for March was 437,406 tons—a slight increase over the average of January–February (434,238 tons). Their average sales realization for March, 1918, was $2.84 per ton (a decrease of 35 cents), and their margin was 52 cents (a decrease of 31 cents).

The possible sales realization at the prices in effect for April, 1918, was $2.78 per ton had the entire output been sold at the maximum prices. The total f. o. b. mine cost of the 41 operators during April, 1918, was $2.38 per ton—an increase of 6 cents over March. The production in April showed a decrease, being 414,552 tons, as compared with that for March of 437,406 tons. The sales realization was $2.64 (a decrease of 20 cents), and the margin 26 cents per ton (a decrease of 26 cents).

The possible sales realization at the prices in effect for May, 1918, was $2.89 per ton. Effective May 1, one of the 41 operators shown in Table 125 received special maximum prices. The total f. o. b. mine cost for the 41 operators during May was $2.23 per ton—a decrease of 15 cents from that of April. There was a marked increase in the output, the production in May being 513,909 tons. The sales realization in May was $2.78 (an increase of 14 cents), and the margin 55 cents per ton (an increase of 29 cents).

Effective May 25, 1918, the Fuel Administration made a 10-cent reduction in the existing maximum prices for the district. The possible sales realization at the district prices in effect for June, 1918, was $2.87 per ton. Effective June 14 and 15, nine of the 41 operators shown in Table 125 received special maximum prices. The nine operators mined about 6 per cent of the total output shown. The f. o. b. mine cost of the 41 operators for June, 1918 ($2.33 per ton), increased 10 cents over that for May. Their output decreased to 488,534 tons. Their average sales realization for June, 1918, was $2.83 per ton (an increase of 5 cents), and their margin 50 cents per ton (a decrease of 5 cents).

The possible sales realization at the district prices in effect for July, 1918, was $2.97 per ton. The f. o. b. mine cost of the 41 operators for July, 1918 ($2.31 per ton), decreased 2 cents from that for June. The output increased to 510,704 tons. Their average sales realization for July was $2.93 per ton (an increase of 10 cents over June), and their margin 62 cents per ton (an increase of 12 cents).

The possible sales realization at the district prices in effect from August 1, 1918, to the end of the year was $3.05 per ton. Between August 13 and November 18, seven of the 41 operators shown in Table 125 received special maximum prices. The seven operators mined about 11 per cent of the total output shown. The average f. o. b. mine cost for the 41 operators during August–December, 1918, was $2.52 per ton—an increase of 21 cents over July. The production decreased, averaging 438,809 tons per month, as compared with that of July (510,704 tons). The sales realization during August–December, 1918, was $3.03 per ton (an increase of 10 cents over July), and the margin 51 cents per ton (a decrease of 11 cents).

TRINIDAD DISTRICT.

The significance of the 11 periods selected for presenting the figures for August, 1917–December, 1918, for the Trinidad district is as follows:

The first four periods (August, 1917; September, 1917; October, 1917; and November–December, 1917) have been described under the Domestic district (see p. 215).

January–February, 1918.—During this period the prices fixed November 1, 1917, continued. While the number of operators from whom 1918 figures were obtained remained the same, four in the 1918 figures were different from those in August–December, 1917.

March, 1918.—Effective March 11, 1918, the Fuel Administration established new maximum prices for this district.

April, 1918.—During April the base price, effective March 11, 1918, was subject, on prepared sizes, to a summer reduction of 40 cents per ton.

May, 1918.—During May the base price, effective March 11, 1918, was subject, on prepared sizes, to a summer reduction of 30 cents per ton. Effective May 25, 1918, the Fuel Administration made a reduction of 10 cents per ton in the existing maximum prices for the district.

June, 1918.—During June the base price, effective March 11, 1918, and modified by the Fuel Administration's order of May 25, 1918, was subject, on prepared sizes, to a summer reduction of 20 cents per ton.

July, 1918.—During July the base price, effective March 11, 1918, and modified by the Fuel Administration's order of May 25, 1918, was subject, on prepared sizes, to a summer reduction of 10 cents per ton.

August–December, 1918.—Throughout this period the base prices, effective March 29, 1918, and modified by the Fuel Administration's order of May 25, 1918, were in effect.

TABLE 126.—*Revised costs and sales realizations of operators in the Trinidad district of Colorado, August, 1917–December, 1918.*

Period.	Number of operators.	Production.	Total f. o. b. mine cost per ton.	Sales realization per ton.	Margin per ton.
		Tons.			
August, 1917	14	328,267	$1.81	$2.08	$0.27
September, 1917	14	301,788	1.81	2.09	.28
October, 1917	14	326,228	1.77	2.16	.39
November–December, 1917	14	600,583	2.20	2.61	.41
January–February, 1918	14	655,181	2.14	2.59	.45
March, 1918	14	332,650	2.17	2.44	.27
April, 1918	14	325,736	2.18	2.47	.29
May, 1918	14	321,778	2.21	2.47	.26
June, 1918	14	301,583	2.26	2.46	.20
July, 1918	14	319,249	2.24	2.39	.15
August–December, 1918	14	1,494,500	2.34	2.50	.16

On August 21, 1917, the Government first fixed prices under the Lever Act. The prices fixed by Executive order for the sale of coal not then under contract in this district on August 21, 1917, were as follows: Run of mine, $2.45; prepared sizes, $2.70; slack, $2.20. The average proportions which these three classes of coal formed of the total output, based on actual returns for all operators in this district who reported to the Federal Trade Commission during the period August–December, 1917, were as follows: Run of mine, 48 per cent; prepared sizes, 20 per cent; slack, 32 per cent. Had the entire output of the 14 operators been sold at the prices established August 21, 1917, it would have brought them a sales realization of $2.42 per ton. The 14 operators actually received during September, 1917, a sales realization of $2.09 per ton. The average total f. o. b. mine cost of the 14 operators was for September, 1917, $1.81 per ton, the same as in August, while their average monthly tonnage was 301,788 tons—a decrease from that in August (328,267 tons). Their margin during September was 28 cents per ton—an increase of 1 cent over August.

Effective October 1, 1917, the Fuel Administration made a change in the existing maximum prices for the district. The new prices were as follows: Run of mine, $2.75; prepared sizes, $3.25; slack, $2. Applying to these prices the proportions (already stated) which these three classes of coal form of the total output, a sales realization of $2.61 per ton was possible had the entire output been sold at the maximum prices. The total f. o. b. mine cost of the 14 operators during October was $1.77 per ton—a decrease of 4 cents from that of September. The production in October showed an increase, being 326,228 tons. The sales realization was $2.16 (an increase of 7 cents), and the margin 39 cents per ton (an increase of 11 cents).

Effective November 1, 1917, a 45-cent increase in the established maximum prices was allowed by Executive order to take care of an increase in the wage scale which went into effect at that time. The average f. o. b. mine cost of the 14 operators for November–December, 1917 ($2.20 per ton), increased 43 cents over that for October, this increase being principally attributable to the higher wage scale and partly to a falling off of production. The output decreased to an average of 300,292 tons per month. Their average sales realization for November–December, 1917, was $2.61 per ton (an increase of 45 cents), and their margin 41 cents per ton (an increase of 2 cents).

During January–February, 1918, the average total f. o. b. mine cost of the 14 operators who reported for the 12 months in 1918 was $2.14 per ton, their sales realization $2.59, and their margin 45 cents per ton.

Effective March 11, 1918, new maximum prices were fixed by the Fuel Administration for the district. The new prices, including the 45-cent increase effective November 1, 1917, because of the wage increase, were as follows: Run of mine, $2.80; prepared sizes, $3.70; slack or screenings, $2.10. The price on prepared sizes, however, was subject to the following summer reductions: April, 40 cents; May, 30 cents; June, 20 cents; July, 10 cents. On August 1 the base price named for prepared sizes in the March 11 order became effective. Applying the proportions of run of mine, prepared sizes, and slack, already stated for this district, the 14 operators would have received, had they sold their entire output at the March base prices, a possible sales realization of $2.76 per ton. Their average total f. o. b. mine cost for March was $2.17 per ton—an increase of 3 cents over the average of January–February, 1918. Their production for March was 332,650 tons—a slight increase over the average of January–February (327,591 tons). Their average sales realization for March, 1918, was $2.44 per ton (a decrease of 15 cents), and their margin was 27 cents (a decrease of 18 cents).

The possible sales realization at the prices in effect for April, 1918, was $2.68 per ton had the entire output been sold at the maximum prices. The total f. o. b. mine cost of the 14 operators during April, 1918, was $2.18 per ton—an increase of 1 cent over March. The production in April showed a decrease, being 325,736 tons, as compared with that for March of 332,650 tons. The sales realization was $2.47 (an increase of 3 cents), and the margin 29 cents per ton (an increase of 2 cents).

The possible sales realization at the prices in effect for May, 1918, was $2.70 per ton. The total f. o. b. mine cost for the 14 operators during May was $2.21 per ton—an increase of 3 cents over that of April. There was a decrease in the output, the production in May being 321,778 tons. The sales realization in May was $2.47 (the same as April), and the margin 26 cents per ton (a decrease of 3 cents).

Effective May 25, 1918, the Fuel Administration made a 10-cent reduction in the existing maximum prices for the district. The possible sales realization at the district prices in effect for June, 1918, was $2.62 per ton. The f. o. b. mine cost of the 14 operators for June, 1918 ($2.26 per ton), increased 5 cents over that of May. Their output decreased to 301,583 tons. Their average sales realization for June, 1918, was $2.46 per ton (a decrease of 1 cent), and their margin 20 cents per ton (a decrease of 6 cents).

The possible sales realization at the district prices in effect for July, 1918, was $2.64 per ton. The f. o. b. mine cost of the 14 operators for July, 1918 ($2.24 per ton), decreased 2 cents from

that for June. The output increased to 319,249 tons. Their average sales realization for July was $2.39 per ton (a decrease of 7 cents from June), and their margin 15 cents per ton (a decrease of 5 cents).

The possible sales realization at the district prices in effect from August 1, 1918, to the end of the year, was $2.66 per ton. The average f. o. b. mine cost for the 14 operators during August–December, 1918, was $2.34 per ton—an increase of 10 cents over July. The production decreased, averaging 298,900 tons per month, as compared with that of July (319,249 tons). The sales realization during August–December, 1918, was $2.50 per ton (an increase of 11 cents over July), and the margin 16 cents per ton (an increase of 1 cent).

LIGNITE DISTRICT.

The significance of the nine periods selected for presenting the figures for August, 1917–December, 1918, for the Lignite district is as follows:

The first three periods (August, 1917; September, 1917; and October, 1917) have been described under the Domestic district (see p. 215).

November, 1917.—This period directly followed the increase in maximum prices allowed by Executive order in consequence of the adoption of a new wage scale (1917–18), which was higher than that adopted earlier in 1917. Effective November 22, 1917, the Fuel Administration established new maximum prices for this district.

December, 1917.—This period followed the price change of November 22, 1917.

The next two periods (January–February, 1918, and March, 1918) have been described under the Domestic district (see p. 215).

April–May, 1918.—This period followed the price change effective March 11, 1918. Beginning with this period, practically the entire output of coal, whether sold under contract or not, was subject to the governmental maximum prices. The 1917–18 wage scale continued in operation.

June–December, 1918.—This period followed the reduction made by the Fuel Administration of 10 cents per ton, effective May 25, 1918, in the maximum prices for the district. Throughout this period the official maximum prices remained unchanged, and the 1917–18 wage scale continued in effect.

TABLE 127.—*Revised costs and sales realizations of operators in the Lignite district of Colorado, August, 1917–December, 1918.*

Period.	Number of operators.	Production.	Total f. o. b. mine cost per ton.	Sales realization per ton.	Margin per ton.
		Tons.			
August, 1917	17	167,140	$1.67	$1.95	$0.28
September, 1917	17	164.573	1.67	1.95	.28
October, 1917	17	220,821	1.58	2.10	.52
November, 1917	17	241,352	1.86	2.56	.70
December, 1917	17	292,400	1.77	2.68	.91
January–February, 1918	15	537,214	1.86	2.66	.80
March, 1918	15	136,162	2.23	2.38	.15
April–May, 1918	15	284,234	2.19	2.37	.18
June–December, 1918	15	1,237,250	2.17	2.40	.23

On August 21, 1917, the Government first fixed prices under the Lever Act. The prices fixed by Executive order for the sale of coal not then under contract in this district on August 21, 1917, were as follows: Run of mine, $2.45; prepared sizes, $2.70; slack, $2.20. The average proportions which these three classes of coal formed of the total output, based on actual returns for all operators in this district who reported to the Federal Trade Commission during the period August–December, 1917, were as follows: Run of mine, 38 per cent; prepared sizes, 42 per cent; slack, 20 per cent. Had the entire output of the 17 operators been sold at the prices established August 21, 1917, it would have brought them a sales realization of $2.51 per ton. The 17 operators actually received, during September, 1917, a sales realization of $1.95 per ton, which was the same as they received during August. The average total f. o. b. mine cost of the 17 operators was, for September, $1.67 per ton, which was the same as that in August. Their tonnage was 164,573 tons—a slight decrease from that in August (167,140 tons). Their margin during September was 28 cents per ton—the same as August.

Effective October 1, 1917, the Fuel Administration made a change in the existing maximum prices for the district. The new prices were as follows: Run of mine, $2.45; prepared sizes, $3.50; slack, $1. Applying to these prices the proportions (already stated) which these three classes of coal form of the total output, a sales realization of $2.60 per ton was possible had the entire output been sold at the maximum prices. The total f. o. b. mine cost of the 17 operators in October was $1.58 per ton—a decrease of 9 cents from that of September. Their output in October was 220,821 tons—a marked increase over September, which was 164,573 tons. Their sales realization in October was $2.10 per ton—an increase of 15 cents over September. Their margin during October was 52 cents per ton—an increase of 24 cents.

Effective November 1, 1917, a 45-cent increase in the established maximum prices was allowed by Executive order, to take care of an increase in the wage scale which went into effect at that time. Effective November 22, 1917, the Fuel Administration made a change in the existing maximum prices for the district. The new prices, including the November 1, 1917, price increase, were as follows: Run of mine, $2.90; prepared sizes, $3.95; slack, $1.70. Applying to these prices the proportions (already stated) which these three classes of coal form of the total output, a sales realization of $3.10 per ton was possible had the entire output been sold at the maximum prices. The average f. o. b. mine cost of the 17 operators for November, 1917 ($1.86 per ton), increased 28 cents over that for October, 1917. Their output increased to 241,352 tons for the month. Their average sales realization for November, 1917, was $2.56 per ton (an increase of 46 cents), and their margin 70 cents per ton (an increase of 18 cents). The average f. o. b. mine cost of the 17 operators for December, 1917 ($1.77 per ton), decreased 9 cents from that for November. The output increased to 292,400 tons. Their average sales realization for December, 1917, was $2.68 per ton (an increase of 12 cents), and their margin 91 cents per ton (an increase of 21 cents).

During January–February, 1918, the average total f. o. b. mine cost of the 15 operators who reported for the 12 months in 1918 was $1.86 per ton, their sales realization $2.66, and their margin 80 cents per ton. Effective March 11, 1918, the Fuel Administration made a change in the existing maximum prices for the district. The new prices, including the November 1, 1917, price increase because of the wage increase, were as follows: Run of mine, $2.70; prepared sizes, $3.70; slack, $1.45. Applying to these prices the proportions (already stated) which these three classes of coal form of the total output, a sales realization of $2.87 per ton was possible had the entire output been sold at the maximum prices. The total f. o. b. mine cost of the 15 operators in March was $2.23 per ton—an increase of 37 cents over the average for January–February. Their output in March was 136,162 tons—a marked decrease from the average for January–February, which was 268,607 tons. The sales realization in March was $2.38 per ton—a decrease of 28 cents from January–February. The margin during March was 15 cents per ton—a decrease of 65 cents from January–February. The total f. o. b. mine cost of the 15 operators during April–May, 1918, was $2.19 per ton—a decrease of 4 cents from March. The production in April–May showed an increase averaging 142,117 tons per month, as compared with 136,162 tons in March. The sales realization was $2.37 (a decrease of 1 cent from March), and the margin 18 cents per ton (an increase of 3 cents).

Effective May 25, 1918, the Fuel Administration made a reduction of 10 cents per ton in the existing maximum prices for this district. The 15 operators had during the seven months' period June–December, 1918, an average f. o. b. mine cost of $2.17 per ton—a decrease of 2 cents per ton from April–May. Their production increased to an average of 176,750 tons. The average sales realization of the 15 operators for June–December, 1918, was $2.40 per ton (an increase of 3 cents over April–May), and their margin 23 cents per ton (an increase of 5 cents).

CHAPTER IX.—NEW MEXICO.

Part I. Introduction.

1. Definition of the various producing districts or fields.

The distribution of output between the various coal-producing districts in New Mexico has been made by combining into three districts the reports received from the six districts as outlined in the Fuel Administration's order, effective April 1, 1918. This was done to avoid the possible identification of operators with their individual costs. The output comprised in the different districts is as follows:

Gallup and Sugarite districts (combined) include coal mined in the Gallup and Sugarite districts in McKinley and part of Colfax Counties.

Carthage and Cerrillos districts (combined) include coal mined in the Carthage and Cerrillos districts in Santa Fe and Socorro Counties.

Raton district includes coal mined in part of Colfax County.

Complete returns for the 12-month period were not received from any operators in the Monero district.

The location of these districts is shown on the map of New Mexico (facing p. 228).

2. General statistics of output.

The statistics in this section for coal produced in New Mexico have been compiled from reports published by the United States Geological Survey.

The proportion which the output of New Mexico has formed of the total bituminous coal output of the United States is as follows:

	Per cent.		Per cent.
1911	0.8	1915	0.9
1912	.8	1916	.8
1913	.8	1917	.7
1914	.9	1918	.7

The following statement shows the proportions which the output of the various districts formed of the State total:

Year.	Production.	Proportion of total produced in each district.		
		Gallup and Sugarite districts (combined).	Carthage and Cerrillos districts (combined).	Raton district.
	Tons.	*Per cent.*	*Per cent.*	*Per cent.*
1911	3,148,158	25	3	72
1912	3,536,824	22	3	75
1913	3,708,806	24	3	73
1914	3,877,689	20	4	76
1915	3,817,940	22	4	74
1916	3,793,011	21	6	73
1917	4,000,527	19	5	76

The United States Geological Survey has collected information on the "average value per ton" for a long series of years. This average is obtained by dividing the total selling value by the total tonnage.[30]

The following table shows this information for 1911–1917:

TABLE 128.—*Production and average value, 1911–1917, by producing districts and State of New Mexico.*

Year.	Gallup and Sugarite districts (combined).		Carthage and Cerrillos districts (combined).		Raton district.		State.	
	Production.	Average value per ton.	Production.	Average value per ton.	Production.	Average value per ton.	Production.	Average value per ton.
	Tons		*Tons.*		*Tons.*		*Tons.*	
1911	788,825	$1.54	107,674	$2.84	2,251,659	$1.33	3,148,158	$1.44
1912	794,157	1.63	105,187	2.82	2,637,480	1.31	3,536,824	1.42
1913	893,907	1.66	120,129	2.85	2,694,770	1.33	3,708,806	1.46
1914	777,059	1.63	145,574	2.92	2,955,056	1.53	3,877,689	1.61
1915	851,621	1.47	157,206	2.97	2,809,113	1.34	3,817,940	1.44
1916	803,534	1.60	208,617	2.68	2,780,860	1.34	3,793,011	1.47
1917	739,923	2.06	208,292	3.59	3,052,312	1.70	4,000,527	1.86

In its reports for 1916 and 1917 the Geological Survey published "average values" in more detail than in previous reports. The following table is compiled from statistics appearing in the 1916 and 1917 reports:

TABLE 129.—*Disposition of production and average values, by producing districts and State of New Mexico, 1916–17.*

District.	Loaded at mines for shipment.				Sold to local trade and used by employees.			
	1916		1917		1916		1917	
	Production.	Average value per ton.	Production.	Average value per ton.	Production.	Average value per ton.	Production.	Average value per ton.
	Tons.		*Tons.*		*Tons.*		*Tons.*	
Gallup and Sugarite (combined)	750,203	$1.64	685,305	$2.10	20,954	$1.51	10,268	$1.71
Carthage and Cerrillos (combined)	187,584	2.77	181,890	3.66	11,863	1.74	18,616	3.26
Raton	1,935,526	1.45	2,060,759	1.85	17,604	1.51	15,752	1.58
State	2,873,313	1.58	2,927,954	2.02	50,421	1.56	44,636	2.31

[30] "The value of coal given in this report is the realization value at the mine f. o. b. cars, and the average value per ton is the average realization price obtained by dividing the total value by the number of tons sold or produced. The coal used at the mine, the coal coked by the producing company, and the coal used in some other industry by the company operating the mine—an appreciable proportion of the whole—is never sold, and the value placed upon it is either an estimate or the figure at which it is carried on the books, either of which is supposedly based on what the coal would have brought if sold or what other fuel for the respective purpose would have cost if its purchase had been necessary. In other words, the values given represent returns to the operators for coal sold plus estimated exchange value of that not sold. These figures do not necessarily show prices or even an average of the prices of coal at the mine." U. S. Geological Survey (Mineral Resources of the United States. Part II, p. 952).

NEW MEXICO
BITUMINOUS COAL FIELDS
AND
PRODUCING DISTRICTS

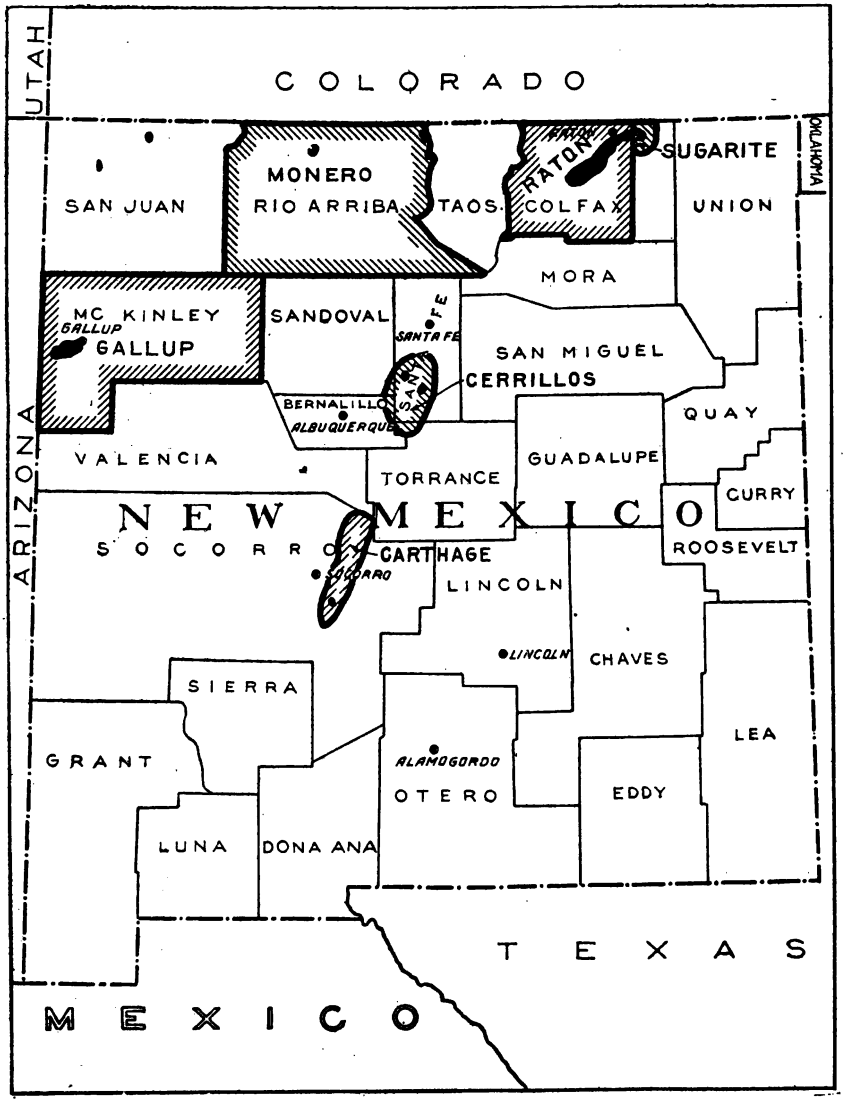


TABLE 129.—*Disposition of production and average values, by producing districts and State of New Mexico, 1916–17*—Continued.

District.	Used at mines for steam and heat.				Made into coke at mines.			
	1916		1917		1916		1917	
	Production.	Average value per ton.	Production.	Average value per ton.	Production.	Average value per ton.	Production	Average value per ton.
	Tons.		*Tons.*		*Tons.*		*Tons.*	
Gallup and Sugarite (combined)	15,495	$0.72	24,520	$1.59	16,882	$1.09	19,830	$1.38
Carthage and Cerrillos (combined)	9,170	2.07	7,786	2.73	.....	.....	.....	.....
Raton	529	1.09	4,143	1.37	827,201	1.09	971,658	1.38
State	25,194	1.22	36,449	1.81	844,083	1.09	991,488	1.38

District.	Total.			
	1916		1917	
	Production.	Average value per ton.	Production.	Average value per ton.
	Tons.		*Tons.*	
Gallup and Sugarite (combined)	803,534	$1.60	739,923	$2.06
Carthage and Cerrillos (combined)	208,617	2.68	208,292	3.59
Raton	2,780,860	1.34	3,052,312	1.70
State	3,793,011	1.47	4,000,527	1.86

3. Character of the consumption of New Mexico coal.

As is the case in many of the coal fields west of the Middle Atlantic States, a considerable portion of the output of bituminous coal in New Mexico goes into domestic consumption. The proportion thus used varies from district to district, and is influenced partly by the nature of the coal, partly by the availability of substitutes, and partly by the extent of preparation given the coal for the purpose of adapting it to domestic use.

The exact extent to which the coal from this State enters into domestic use is not definitely ascertainable from any figures at present available. In the 1915 report of the United States Geological Survey [31] some statistics of the distribution of bituminous coal by classes of consumers, for New Mexico, are shown. From these the percentages of consumption shown in the following statement have been compiled:

[31] Mineral Resources of the United States, 1915. Part II, pp. 471–472.

	Per cent.
Railroad	42.8
Coke	19.2
Gas	.3
Domestic and small steam trade	15.7
Industrial steam trade	15.7
Exported	4.1
Mine fuels	.7
Special	1.5
Total output (tons)	3,817,940

The following statistics of distribution of shipments of bituminous coal, by classes of consignees, August 3, 1918, to February 1, 1919, are taken from an unpublished manuscript of the Geological Survey and are published by permission of that bureau:

	Per cent.
Railroad fuel	55.4
United States Government	1.6
State and county institutions	.3
Public utilities, gas and electric	4.3
Retail dealers	19.5
Industries, including iron and steel	18.9
	100.0

This use of coal for domestic consumption introduces, to a greater or less extent, changes in the character of the seasonal demand. In Report No. 2, on Pennsylvania anthracite, the commission pointed out the wide differences between the character of the demand for coal for domestic consumption and the demand for industrial use. If the coal is of a nature which can be stored without undue fire risk and if the domestic consumer can be induced to buy his coal during the summer the domestic demand has a less seasonal character than where such conditions do not exist. Despite the marked seasonal fluctuations, the annual domestic demand is likely to be a fairly constant quantity from year to year. On the other hand, the industrial demand for coal, while not always subject to such extreme seasonal fluctuations as that of coal for domestic use, is likely to vary to a much greater extent from year to year, influenced as it is primarily by periods of industrial prosperity or depression.

Part II. 1918 costs and sales realizations.

1. Number and extent of operations covered.

The 1918 production of the 12 operators in New Mexico from whom cost reports were obtained by the commission, was as follows:

	Tons.	Per cent.
Gallup and Sugarite districts (combined):		
5 operators from whom costs were obtained for 12 months	794,410	98.4
1 operator from whom costs were obtained for less than the full 12 months (actual tonnage reported 6,185 tons) estimated yearly tonnage	12,732	1.6
Total	807,142	100.0
Carthage and Cerrillos districts (combined): 4 operators from whom costs were obtained for 12 months	156,303	100.0
Raton district: 2 operators from whom costs were obtained for 12 months	2,971,746	100.0
State:		
11 operators from whom costs were obtained for 12 months	3,922,459	99.7
1 operator from whom costs were obtained for less than the full 12 months (actual tonnage reported 6,185 tons) estimated yearly tonnage	12,732	.3
Total	3,935,191	100.0

The above figures are shown, *inclusive* of power-house fuel, for comparison with the United States Geological Survey statistics. The total output of the 11 operators from whom costs were obtained for 12 months was, *exclusive* of power-house fuel, 3,879,420 tons.

Returns covering the 12 months of 1918 were not received from any operators in the Monero district.

According to the statistics issued by the Geological Survey, the output of New Mexico during 1918 was 4,023,239 tons, of which 39,271 tons were used at the mine for steam and heat. The commission obtained cost information on 3,928,644 tons produced in 1918 (including power-house fuel), forming 98 per cent of the total, as reported by the Survey. It publishes in this report cost information on 3,879,420 tons of commercial production, which is 97 per cent of the output reported by the Survey, after exclusion of the mine fuel.

2. Classification of producers by number of mines operated.

The costs of the 11 operators shown in the tabulation for New Mexico cover the output of 19 mines. The following table shows the number of mines operated by the different producers:

TABLE 130.—*Number of mines operated by different producers in New Mexico.*

Number of mines run by each operator.	Number of operators.	Proportion of total number.	Production tonnage, 1918.	Proportion of total production.
Gallup and Sugarite districts (combined):		*Per cent.*	*Tons.*	*Per cent.*
1 mine	3	60.0	148,303	19.6
2 mines	1	20.0	226,857	29.9
3 mines	1	20.0	383,322	50.5
Total (number of mines, 8)	5	100.0	758,482	100.0
Carthage and Cerrillos districts (combined): 1 mine (number of mines, 4)	4	100.0	151,850	100.0
Raton district:				
1 mine	1	50.0	1,332,948	44.9
6 mines	1	50.0	1,636,140	55.1
Total (number of mines, 7)	2	100.0	2,969,088	100.0
State:				
1 mine	8	72.7	1,633,101	42.1
2 mines	1	9.1	226,857	5.8
3 mines	1	9.1	383,322	9.9
5 mines	1	9.1	1,636,140	42.2
Total (number of mines, 19)	11	100.0	3,879,420	100.0

It will be seen that in the State eight producers (73 per cent of the total number shown in the table) operated only one mine each and produced 42 per cent of the output. The following statement shows the average number of mines operated by a producer, and the average production per mine operated by one-mine operators and by operators of two or more mines, for each district and for the State of New Mexico:

District.	Average number of mines operated by a producer.	Average production per mine operated by—		
		One-mine operators.	Operators of two or more mines.	All operators combined.
	Mines.	*Tons.*	*Tons.*	*Tons.*
Gallup and Sugarite (combined)	1.6	49,434	122,036	94,810
Carthage and Cerrillos (combined)	1.0	37,963	.....	37,963
Raton	3.5	1,332,948	272,690	424,155
State	1.7	204,138	204,211	204,180

The number and size of mines in New Mexico are shown in further detail in the report for 1917 of the United States Geological Survey, from which the following statistics are derived:[32]

Annual output of mines.	Mines.		Tonnage.	
	Number.	Proportion of total in State.	Average production per mine.	Proportion of total State output.
		Per cent.	*Tons.*	*Per cent.*
200,000 tons and over	9	20.0	309,121	69.5
100,000 to 199,999 tons	5	11.1	129,664	16.2
50,000 to 99,999 tons	5	11.1	77,191	9.6
10,000 to 49,999 tons	7	15.6	18,351	3.3
Under 10,000 tons	19	42.2	2,932	1.4
State	45	100.0	88,901	100.0

[32] Mineral Resources of the United States, 1917. Part II, pp. 947–948.

3. *Classification of producers by size of output.*

The 11 producers tabulated for New Mexico are classified by size of their output in 1918, exclusive of power-house fuel, as follows:

TABLE 131.—*Classification of 11 New Mexico operators by size of output.*

Production during 1918.	Number of operators.	Proportion of total number.	Tonnage produced, 1918.	Proportion of total production.
		Per cent.	*Tons.*	*Per cent.*
Gallup and Sugarite districts (combined):				
Under 50,000 tons	2	40.0	76,358	10.1
50,000 to 99,999 tons	1	20.0	71,945	9.5
100,000 to 499,999 tons	2	40.0	610,179	80.4
Total	5	100.0	758,482	100.0
Carthage and Cerrillos districts (combined):				
Under 50,000 tons	3	75.0	97,217	64.0
50,000 to 99,999 tons	1	25.0	54,633	36.0
Total	4	100.0	151,850	100.0
Raton district: 1,000,000 tons and over	2	100.0	2,969,088	100.0
State:				
Under 50,000 tons	5	45.4	173,575	4.5
50,000 to 99,999 tons	2	18.2	126,578	3.3
100,000 to 499,999 tons	2	18.2	610,179	15.7
1,000,000 and over	2	18.2	2,969,088	76.5
Total	11	100.0	3,879,420	100.0

4. *The 1918 costs and sales realizations shown by districts.*

There was no change in the official wage scale for bituminous coal miners in New Mexico during 1918. Therefore the labor costs per ton for the period were principally affected by changes in the production tonnage and not by changes in the rate of wages paid labor. The effect of decreased production in increasing labor costs can be clearly seen on Charts 27 and 28 (opposite p. 236).

Because of the small number of operators in each district who filed returns for the full 12 months, no detailed appendix tables are shown for any district in New Mexico.

In the tables following are compared the true average cost and sales realization, the range of 90 per cent of the output which had the lowest costs and sales realizations, and the extreme range for the entire output of the 11 operators.

TABLE 132.—*1918 quarterly and yearly revised costs and sales realization for 4 operators in Carthage and Cerrillos districts (combined) of the State of New Mexico, showing averages and range for 90 per cent and for 100 per cent of total output.*

Period.	Costs per net ton.												Sales realization per net ton.		
	Labor.			Supplies.			General expense.			Total f. o. b. mine.					
	Average.	Range. 90 per cent output.	Range. 100 per cent output.	Average.	Range. 90 per cent output.	Range. 100 per cent output.	Average.	Range. 90 per cent output.	Range. 100 per cent output.	Average.	Range. 90 per cent output.	Range. 100 per cent output.	Average.	Range. 90 per cent output.	Range. 100 per cent output.
Jan.-Mar	$2.58	$1.73-$2.87	$1.73-$3.60	$0.49	$0.19-$0.67	$0.19-$0.67	$0.52	$0.37-$0.61	$0.37-$0.61	$3.59	$2.67-$3.88	$2.67-$4.16	$4.19	$3.97-$4.36	$3.97-$4.36
Apr.-June	2.63	1.71- 3.22	1.71- 3.22	.56	.09- .68	.09- .68	.50	.33- .64	.33- .64	3.69	2.81- 4.34	2.81- 4.34	4.08	3.98- 4.18	3.98- 4.18
July-Sept	2.67	1.75- 3.34	1.75- 4.02	.60	.13- .83	.13- .83	.55	.42- .64	.42- .64	3.82	2.82- 4.39	2.82- 4.66	4.16	3.80- 4.44	3.80- 4.44
Oct.-Dec	2.67	1.86- 3.00	1.86- 3.66	.62	.21- .73	.21- .73	.60	.46- .84	.46- .84	3.89	3.05- 4.46	3.05- 4.46	4.35	3.89- 4.61	3.89- 4.61
Year	2.64	1.76- 3.07	1.76- 3.60	.56	.15- .71	.15- .71	.54	.42- .63	.42- .63	3.74	2.84- 4.12	2.84- 4.17	4.20	3.91- 4.41	3.91- 4.41

TABLE 133.—*1918 quarterly and yearly revised costs and sales realization for 5 operators in Gallup and Sugarite districts (combined) of the State of New Mexico, showing averages and range for 90 per cent and for 100 per cent of total output.*

Period.	Costs per net ton.												Sales realization per net ton.		
	Labor.			Supplies.			General expense.			Total f. o. b. mine.					
	Average.	Range. 90 per cent output.	Range. 100 per cent output.	Average.	Range. 90 per cent output.	Range. 100 per cent output.	Average.	Range. 90 per cent output.	Range. 100 per cent output.	Average.	Range. 90 per cent output.	Range. 100 per cent output.	Average.	Range. 90 per cent output.	Range. 100 per cent output.
Jan.-Mar	$2.31	$1.76-$2.65	$1.76-$2.65	$0.34	$0.15-$0.45	$0.15-$0.47	$0.50	$0.21-$0.63	$0.21-$0.63	$3.15	$2.25-$3.73	$2.25-$3.73	$3.06	$2.82-$3.39	$2.82-$2.44
Apr.-June	2.20	1.79- 2.39	1.79- 2.83	.31	.13- .42	.13- .42	.52	.21- .64	.21- .66	3.03	2.27- 3.45	2.27- 3.62	2.93	2.80- 2.95	2.80- 2.95
July-Sept	2.20	1.84- 2.42	1.84- 2.85	.29	.13- .33	.13- .33	.48	.21- .64	.21- .64	2.97	2.39- 3.39	2.39- 3.50	3.58	3.07- 3.72	3.07- 3.72
Oct.-Dec	2.37	2.01- 2.60	2.01- 2.60	.33	.16- .41	.16- .41	.62	.26- .75	.26- .75	3.32	2.76- 3.76	2.76- 3.76	3.65	3.14- 3.80	3.14- 3.80
Year	2.26	1.90- 2.51	1.90- 2.60	.32	.20- .40	.20- .40	.53	.22- .66	.22- .66	3.11	2.47- 3.57	2.47- 3.57	3.31	3.15- 3.36	3.15- 3.46

TABLE 134.—*1918 quarterly and yearly revised costs and sales realization for 2 operators in Raton district of the State of New Mexico, showing averages and range for 90 per cent and for 100 per cent of total output.*

Period.	Costs per net ton.												Sales realization per net ton.		
	Labor.			Supplies.			General expense.			Total f. o. b. mine.					
	Average.	Range.		Average.	Range.		Average.	Range.		Average.	Range.		Average.	Range.	
		90 per cent output.	100 per cent output.		90 per cent output.	100 per cent output.		90 per cent output.	100 per cent output.		90 per cent output.	100 per cent output.		90 per cent output.	100 per cent output.
Jan.-Mar	$1.36	$1.36-$1.36	$1.36-$1.36	$0.19	$0.16-$0.22	$0.16-$0.22	$0.23	$0.20-$0.26	$0.20-$0.26	$1.78	$1.78-$1.78	$1.78-$1.78	$2.60	$2.55-$2.66	$2.55-$2.66
Apr.-June	1.36	1.34- 1.38	1.34- 1.38	.23	.21- .25	.21- .25	.23	.21- .25	.21- .25	1.82	1.80- 1.84	1.80- 1.84	2.64	2.48- 2.82	2.48- 2.82
July-Sept	1.39	1.34- 1.43	1.34- 1.43	.24	.22- .24	.22- .24	.21	.22- .22	.22- .22	1.84	1.78- 1.89	1.78- 1.89	3.08	2.93- 3.25	2.93- 3.25
Oct.-Dec	1.43	1.40- 1.46	1.40- 1.46	.26	.24- .28	.24- .28	.27	.27- .27	.27- .27	1.96	1.95- 1.97	1.95- 1.97	3.07	2.93- 3.23	2.93- 3.23
Year	1.39	1.36- 1.41	1.36- 1.41	.22	.21- .24	.21- .24	.24	.22- .25	.22- .25	1.85	1.82- 1.87	1.82- 1.87	2.83	2.71- 2.98	2.71- 2.98

The following table of yearly averages is given for the sake of ready comparison of the different districts:

TABLE 135.—*Average costs and sales realizations of all New Mexico districts for the year 1918.*

District.	Production.	Costs per ton.				Sales realization per ton.	Margin per ton.
		Labor.	Supplies.	General expense.	Total f. o. b. mine.		
	Tons.						
Gallup and Sugarite (combined)	758,482	$2.26	$0.32	$0.53	$3.11	$3.31	$0.20
Carthage and Cerrillos (combined)	151,850	2.64	.56	.54	3.74	4.20	.46
Raton	2,969,088	1.39	.22	.24	1.85	2.83	.98

The difference between the labor costs per ton for the different districts is due in a large degree to the difference in the thickness of seams mined, and to some extent also is attributable to differences in the mining methods followed. As will be noted from the tabulation of thickness of seam (see Table 139, p. 239), about 71 per cent of the output of the Carthage and Cerrillos districts (combined), and 54 per cent of the output of the Gallup and Sugarite districts, came from seams which averaged less than 5 feet thick, while all of the output of the Raton district came from seams which averaged over 5 feet thick.

Both of the operators in the Raton district coked a part of their output, one coking 35 per cent and the other 39 per cent of the production.

Statistics showing the distribution of the output between pick-mined and machine-mined coal have been compiled from the 1919 annual report of the State inspector of mines of New Mexico for the fiscal year ending October 31, 1919:

TABLE 136.—*Distribution of pick-mined and machine-mined output, from State report for 1919.*

District.	Pick-mined.		Machine-mined.		Total production.
	Production.	Proportion of district.	Production.	Proportion of district.	
	Tons.	*Per cent.*	*Tons.*	*Per cent.*	*Tons.*
Gallup and Sugarite (combined)	749,766	93.4	52,641	6.6	802,407
Carthage and Cerrillos (combined)	157,245	69.8	67,905	30.2	225,150
Raton	1,377,289	61.4	867,284	38.6	2,244,573
State	2,284,300	69.8	987,830	30.2	3,272,130

5. *Relation of the costs to the sales realizations.*

The following table shows the distribution, by quarters and for the year 1918, between the items of labor, supplies, general expense, and margin of each dollar of sales realization received by the operator:

BITUMINOUS COAL — NEW MEXICO

CHART 27.—Production tonnage, by quarters for 1918, of 11 Operators, by producing Districts in New Mexico.

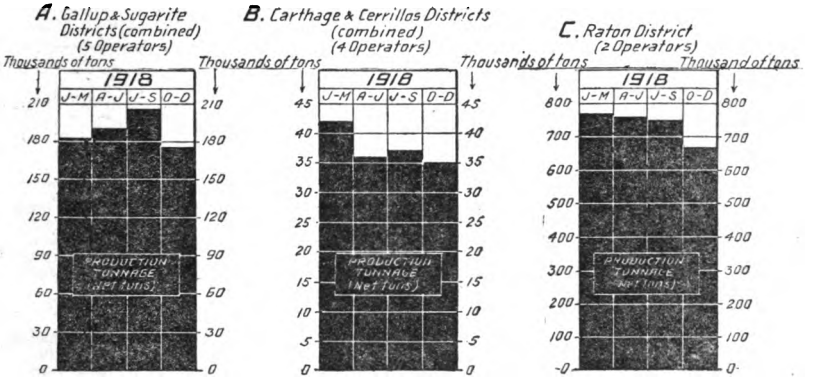


CHART 28.—Average Costs and Sales Realizations per ton, by quarters for 1918, of 11 Operators by producing Districts in New Mexico.

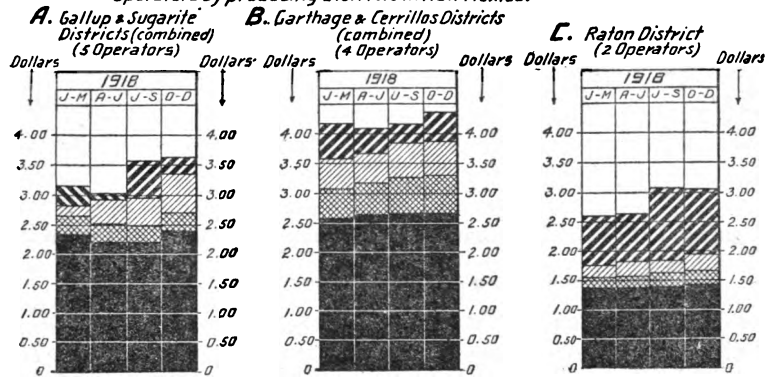


CHART 29.—Distribution of Amount paid by purchaser between the various principal Costs and the Margin, based on each dollar of Sales Realization, by quarters in 1918 in New Mexico.

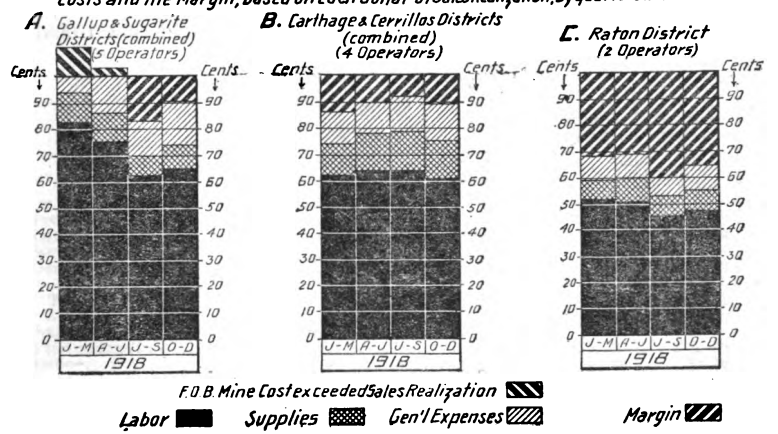


TABLE 137.—*Distribution of the amount paid by the purchaser between the various principal costs and the margin, based on each dollar of sales realization, for the Gallup and Sugarite districts (combined), the Carthage and Cerrillos districts (combined), and the Raton district in New Mexico, 1918, by quarters and for the year.*

Period.	Costs.				Margin.
	Labor.	Supplies.	General expense.	Total f. o. b. mine.	
	Cents.	*Cents.*	*Cents.*	*Cents.*	*Cents.*
Gallup and Sugarite districts (combined):					
January-March	76	11	16	[1] 103	[1] 3
April-June	75	11	18	[1] 103	[1] 3
July-September	62	8	13	83	17
October-December	65	9	17	91	9
Year	68	10	16	94	6
Carthage and Cerrillos districts (combined):					
January-March	62	12	12	86	14
April-June	64	14	12	90	10
July-September	64	15	13	92	8
October-December	61	14	14	89	11
Year	63	13	13	89	11
Raton district:					
January-March	52	7	9	68	32
April-June	51	9	9	69	31
July-September	45	8	7	60	40
October-December	47	8	9	64	36
Year	49	8	8	65	35

[1] The total f. o. b. mine cost exceeded the sales realization.

These facts are shown in graphic form in Chart 29 (facing p. 236).

6. Comparison of claimed and revised costs.

The foregoing tables present costs which have in some cases been revised by the accountants of the commission from the claimed figures reported on the original schedules by the operators. The changes brought about through the revision in the average costs for the year 1918 for the 11 operators were as follows:

Item.	Claimed costs.	Revised costs.	Increase (I) or decrease (D) due to revision.
Gallup and Sugarite districts (combined):			
Production (tons)	794,410	758,482	[1] 35,928 (D)
Labor ... per ton	$2.16	$2.26	$0.10 (I)
Supplies ... do	.37	.32	.05 (D)
General expense ... do	.62	.53	.09 (D)
Total f. o. b. mine ... do	3.15	3.11	.04 (D)
Carthage and Cerrillos districts (combined):			
Production (tons)	156,303	151,850	[1] 4,453 (D)
Labor ... per ton	$2.49	$2.64	$0.15 (I)
Supplies ... do	.71	.56	.15 (D)
General expense ... do	.67	.54	.13 (D)
Total f. o. b. mine ... do	3.87	3.74	.13 (D)

[1] Due to exclusion of power-house fuel.

Item.	Claimed costs.	Revised costs.	Increase (I) or decrease (D) due to revision.
Raton district:			
Production (tons)	2,971,746	2,969,088	[1] 2,658 (D)
Labor ... per ton	$1.38	$1.39	$0.01 (I)
Supplies ... do	.23	.22	.01 (D)
General expense ... do	.28	.24	.04 (D)
Total f. o. b. mine ... do	1.89	1.85	.04 (D)
State:			
Production (tons)	3,922,459	3,879,420	[1] 43,039 (D)
Labor ... per ton	$1.59	$1.61	$0.02 (I)
Supplies ... do	.27	.25	.02 (D)
General expense ... do	.36	.31	.05 (D)
Total f. o. b. mine ... do	2.22	2.17	.05 (D)

[1] Due to exclusion of power-house fuel.

The increase of 2 cents in the average State revised labor cost over the claimed is caused by the use of the revised production tonnage as a divisor. The total claimed labor cost was $6,217,568 and the total revised labor cost was $6,228,168. The upward revision resulted from the inclusion, by the commission, of an item of expense properly chargeable to labor cost, which had been shown under a different classification by the reporting operator.

The costs claimed by some of the operators were obviously open to question as to their accuracy. Such operators were required by the commission to furnish detailed information in support of the claimed costs. The examination of such detailed information revealed the fact that they had often included in their general expense costs such items as contingent and maintenance reserves, etc. In some cases the costs had been inflated principally through the inclusion of officers' salaries, which were far in excess of those paid in neighboring operations of similar size, and by excessive charges for the items of depreciation and depletion, which had not been computed in accordance with the rules prescribed in the instructions of the commission. The chief instance of revision affected one operator and involved about 6 per cent of the total State tonnage.

7. 1918 costs shown by thickness of seam mined.

About 58 per cent of the output of New Mexico came from three producers who operated more than one mine. Most of these producers did not report the costs of each mine separately. In order to include them in a tabulation to show costs by thickness of seam, it was necessary to use the average of the seams mined by them. This has led to the inclusion of data in the tabulation for the 11 operators, which to a slight extent vitiates its scientific value, since it is not known whether equal tonnage was derived from mines which had

seams above or below the average thickness. The tabulation by thickness of seam for the 11 operators follows:

TABLE 138.—*Seam tabulation of revised costs for 11 operators in New Mexico.*

Thickness of seam.	Number of operators.	Production.	Costs per ton.			
			Labor.	Supplies.	General expense.	Total f. o. b. mine.
		Tons.				
36 to 47 inches	3	92,940	$3.00	$0.37	$0.55	$3.92
48 to 59 inches	2	424,518	2.44	.42	.64	3.50
60 to 71 inches	6	3,361,962	1.46	.23	.26	1.95
Total	11	3,879,420	1.61	.25	.31	2.17

The distribution, between seams, of the output of the 11 operators was as follows:

TABLE 139.—*Distribution, between seams, of output of 11 operators in New Mexico.*

Thickness of seam.	5 operators producing 758,482 tons in 1918.	
	Number of operators.	Per cent of output.
Gallup and Sugarite districts (combined):		
36 to 47 inches	1	3.6
48 to 59 inches	1	50.5
60 to 71 inches	3	45.9
Total	5	100.0
	4 operators producing 151,850 tons in 1918.	
Carthage and Cerrillos districts (combined):		
36 to 47 inches	2	43.4
48 to 59 inches	1	27.1
60 to 71 inches	1	29.5
Total	4	100.0
	2 operators, producing 2,969,088 tons in 1918.	
Raton district: 60 to 71 inches	2	100.0
	11 operators, producing 3,879,420 tons in 1918.	
State:		
36 to 47 inches	3	2.4
48 to 59 inches	2	10.9
60 to 71 inches	6	86.7
Total	11	100.0

A decrease in the labor cost per ton accompanied the increase in the thickness of seam mined. There is no close correlation shown between the various supplies costs and thicknesses of seam.

General expense is less affected than labor cost by conditions of a physical nature, like thickness of seam, but is closely connected with the commercial and financial economies of operation. The following comparison of the eight one-mine operators with the three operators of two or more mines is of interest:

TABLE 140.—*Comparison of average revised costs: Operators of one mine with operators of two or more mines in New Mexico.*

District.	Number of operators.	Number of mines.	Output, 1918.			Costs per ton.			
			Total output.	Output per operator.	Output per mine.	Labor.	Supplies.	General expense.	Total f. o. b. mine.
Gallup and Sugarite (combined):			*Tons.*	*Tons.*	*Tons.*				
1 mine	3	3	148,303	49,434	49,434	$2.20	$0.26	$0.40	$2.86
2 or more mines	2	5	610,179	305,089	122,036	2.28	.33	.56	3.17
Total	5	8	758,482	151,696	94,810	2.26	.32	.53	3.11
Carthage and Cerrillos (combined): 1 mine	4	4	151,850	37,963	37,963	2.64	.56	.54	3.74
Raton:									
1 mine	1	1	1,332,948	1,332,948	1,332,948	1.36	.24	.22	1.82
2 or more mines	1	6	1,636,140	1,636,140	272,690	1.41	.21	.25	1.87
Total	2	7	2,969,088	1,484,544	424,155	1.39	.22	.24	1.85
State:									
1 mine	8	8	1,633,101	204,138	204,138	1.55	.27	.27	2.09
2 or more mines	3	11	2,246,319	748,773	204,211	1.64	.24	.34	2.22
Total	11	19	3,879,420	352,675	204,180	1.61	.25	.31	2.17

In the Carthage and Cerrillos districts (combined) returns were received for one-mine operators only. In the other two districts and for the State the general expense costs of operators of two or more mines exceeded those of the one-mine operators.

Part III. Comparative costs and sales realizations, August, 1917–December, 1918.

1. Representativeness of statistics presented.

Representative figures were not obtained by the commission for costs and sales realizations prior to August, 1917, in the various New Mexico districts. Use has, therefore, been made of the monthly reports covering the last five months of 1917. Nearly every one of the operators that appears in the 1917 appears also in the 1918 figures, but there are a few unimportant exceptions, which do not affect the general comparability of the 1917 figures with those of 1918. The

average total f. o. b. mine costs, sales realizations, and margins of about 97 per cent of the entire output mined in the districts are presented for these districts.

2. The revised costs, sales realizations, and production figures, and analyses of the fluctuations, by districts, August, 1917–December, 1918.

GALLUP DISTRICT.

The significance of the 11 periods selected for presenting the figures for August, 1917–December, 1918, for the Gallup district is as follows:

August, 1917.—The greater part of this month was prior to the fixing, by Executive order of August 21, 1917, of maximum prices for bituminous coal not sold under contracts made prior to that date, and the establishment of a Fuel Administration to regulate the fuel situation.

September–October, 1917.—This period directly followed the fixing, by Executive order of August 21, 1917, of maximum prices for bituminous coal not sold under contracts made prior to that date, and the establishment of a Fuel Administration to regulate the fuel situation. The 1917 wage scale continued in operation during these two months.

November, 1917.—This period directly followed the increase in maximum prices allowed by Executive order in consequence of the adoption of a new wage scale (1917–18), which was higher than that adopted earlier in 1917. Effective November 26, 1917, the Fuel Administration established new maximum prices for this district.

December, 1917.—This period followed the price change of November 26, 1917.

January–March, 1918.—During this period the prices fixed November 26, 1917, continued.

April, 1918.—Effective April 1, 1918, the Fuel Administration established new maximum prices for this district. During April the base price on prepared sizes was subject to a summer reduction of 50 cents per ton.

May, 1918.—During May the base price effective April 1, 1918, was subject, on prepared sizes, to a summer reduction of 40 cents per ton. Effective May 25, 1918, the Fuel Administration made a reduction of 10 cents per ton in the existing maximum prices for the district.

June, 1918.—During June the base price effective April 1, 1918, and modified by the Fuel Administration's order of May 25, 1918, was subject on prepared sizes to a summer reduction of 30 cents per ton.

July, 1918.—During July the base price effective April 1, 1918, and modified by the Fuel Administration's order of May 25, 1918, was subject on prepared sizes to a summer reduction of 20 cents per ton.

August, 1918.—During August the base price effective April 1, 1918, and modified by the Fuel Administration's order of May 25, 1918, was subject on prepared sizes to a summer reduction of 10 cents per ton.

September–December, 1918.—Throughout this period the base prices effective April 1, 1918, and modified by the Fuel Administration's order of May 25, 1918, were in effect.

TABLE 141.—*Revised costs and sales realizations of operators in the Gallup district of New Mexico, August, 1917–December, 1918.*

Period.	Number of operators.	Production.	Total f. o. b. mine cost per ton.	Sales realization per ton.	Margin per ton.
		Tons.			
August, 1917	4	29,973	$2.70	$2.38	[1] $0.32
September–October, 1917	4	77,496	2.65	2.44	[1] .21
November, 1917	4	45,830	2.99	2.67	[1] .32
December, 1917	4	49,784	3.30	3.05	[1] .25
January–March, 1918	4	171,119	3.15	3.01	[1] .14
April, 1918	4	55,524	3.21	2.83	[1] .38
May, 1918	4	59,983	3.01	2.96	[1] .05
June, 1918	4	64,452	2.80	2.98	.18
July, 1918	4	66,053	2.81	3.56	.75
August, 1918	4	68,002	2.97	3.65	.68
September–December, 1918	4	224,028	3.28	3.69	.41

[1] Total f. o. b. cost exceeded sales realization.

On August 21, 1917, the Government first fixed prices under the Lever Act. The prices fixed by Executive order for the sale of coal not then under contract in this district on August 21, 1917, were as follows: Run of mine, $2.40; prepared sizes, $2.65; slack, $2.15. The average proportions which these three classes of coal formed of the total output, based on actual returns for all operators in this district who reported to the Federal Trade Commission during the period August–December, 1917, were as follows: Run of mine, 9 per cent; prepared sizes, 71 per cent; slack, 20 per cent. Had the entire output of the four operators been sold at the prices established August 21, 1917, it would have brought them a sales realization of $2.53 per ton. The four operators actually received, during September–October, 1917, a sales realization of $2.44 per ton. The average total f. o. b. mine cost of the four operators was, for September–October, 1917, $2.65 per ton (a decrease of 5 cents from that in August), while their average monthly tonnage was 38,748 tons (an increase from that in August—29,973 tons). Their f. o. b. mine cost exceeded their sales realization during September–October by 21 cents per

ton—a net increase of 11 cents over August, when the excess of total f. o. b. mine cost over sales realization was 32 cents.

Effective November 1, 1917, a 45-cent increase in the established maximum prices was allowed by Executive order, to take care of an increase in the wage scale which went into effect at that time. The average f. o. b. mine cost of the four operators for November, 1917 ($2.99 per ton), increased 34 cents over that for September–October, 1917, this increase being principally attributable to the higher wage scale. The output increased to 45,830 tons. Their average sales realization for November, 1917, was $2.67 per ton (an increase of 23 cents), and their f. o. b. mine cost exceeded their sales realization by 32 cents per ton (an excess of total f. o. b. mine cost over sales realization 11 cents greater than that of September–October).

Effective November 26, 1917, new maximum prices for the district were established by the Fuel Administration. The new prices were, inclusive of the 45-cent price increase because of the November, 1917, wage increase, as follows: Run of mine, $3.50; prepared sizes, $4.95; slack, $2.45. Applying to these prices the proportions (already stated) which these three classes of coal form of the total output, a sales realization of $4.32 per ton was possible had the entire output been sold at such maximum prices. The total f. o. b. mine cost of the four operators in December, 1917, was $3.30 per ton—an increase of 31 cents over November, 1917. The production in December was 49,784 tons—a slight increase over that for November (45,830 tons). Their December sales realization was $3.05 (an increase of 38 cents), and their f. o. b. mine cost exceeded their sales realization by 25 cents per ton (7 cents less than it did in November).

During January–March, 1918, the average total f. o. b. mine cost of the four operators who reported for the 12 months in 1918 was $3.15 per ton; their sales realization, $3.01; and their f. o. b. mine cost exceeded their sales realization by 14 cents per ton.

Effective April 1, 1918, new maximum prices were fixed by the Fuel Administration for the district. The new prices, including the 45-cent increase effective November 1, 1917, because of the wage increase, were as follows: Run of mine, $3.50; prepared sizes, $4.50; slack, $2.45. The prices on prepared sizes, however, were subject to the following summer reductions: April, 50 cents; May, 40 cents; June, 30 cents; July, 20 cents; and August, 10 cents. On September 1 the base price named for prepared sizes in the April 1 order became effective. Applying the proportions of run of mine, prepared sizes, and slack, already stated for this district, the four operators would have received, had they sold their entire output at the April prices, a possible sales realization of $3.65 per ton. Their average total f. o. b. mine cost for April was $3.21 per ton—an increase of 6 cents over the average of January–March, 1918. Their pro-

duction for April was 55,524 tons—a slight decrease from the average of January–March (57,040 tons). Their average sales realization for April, 1918, was $2.83 per ton (a decrease of 18 cents), and their f. o. b. mine cost exceeded their sales realization by 38 cents per ton—an excess of total f. o. b. mine cost over sales realization 24 cents greater than that of January–March.

The possible sales realization at the prices in effect for May, 1918, was $3.72 per ton. The total f. o. b. mine cost for the four operators during May was $3.01 per ton—a decrease of 20 cents from that of April. There was an increase in the output, the production in May being 59,983 tons. The sales realization in May was $2.96 (an increase of 13 cents), and their f. o. b. mine cost exceeded the sales realization by 5 cents per ton (an increase of 33 cents over April, when the total f. o. b. mine cost exceeded the sales realization by 38 cents per ton).

Effective May 25, 1918, the Fuel Administration made a 10-cent reduction in the existing maximum prices for the district. The possible sales realization at the district prices in effect for June, 1918, was $3.69 per ton. The f. o. b. mine cost of the four operators for June, 1918 ($2.80 per ton), decreased 21 cents from that for May. Their output increased to 64,452 tons. Their average sales realization for June, 1918, was $2.98 per ton (an increase of 2 cents), and their margin was 18 cents per ton (a net increase of 23 cents over May).

The possible sales realization at the district prices in effect for July, 1918, was $3.76 per ton. The f. o. b. mine cost of the four operators for July, 1918 ($2.81 per ton), increased 1 cent over that for June. The output increased to 66,053 tons. Their average sales realization for July was $3.56 per ton (an increase of 58 cents over June), and their margin 75 cents per ton (an increase of 57 cents).

The possible sales realization at the district prices in effect for August, 1918, was $3.83 per ton. The average f. o. b. mine cost for the four operators during August, 1918, was $2.97 per ton—an increase of 16 cents over July. The production increased to 68,002 tons. The sales realization during August, 1918, was $3.65 per ton (an increase of 9 cents over July), and the margin 68 cents per ton (a decrease of 7 cents).

The possible sales realization at the prices in effect from September 1, 1918, to the end of the year was $3.90 per ton had the entire output been sold at the maximum prices. The total f. o. b. mine cost of the four operators during September–December, 1918, was $3.28 per ton—an increase of 31 cents over August. Their average production in September–December showed a decrease, being 56,007 tons, as compared with that for August of 68,002 tons. The sales

realization was $3.69 (an increase of 4 cents), and the margin 41 cents per ton (a decrease of 27 cents).

CARTHAGE AND CERRILLOS DISTRICTS (COMBINED).

The significance of the 11 periods selected for presenting the figures for August, 1917–December, 1918, for the Carthage and Cerrillos districts (combined), is as follows:

The first 10 periods (August, 1917; September–October, 1917; November, 1917; December, 1917; January–March, 1918; April, 1918; May, 1918; June, 1918; July, 1918; and August, 1918) have been described under Gallup district (see p. 241).

September–December, 1918.—Effective August 30, 1918, the Fuel Administration made a change in the maximum prices for the Cerrillos district, but the base prices effective April 1, 1918, and modified by the Fuel Administration's order of May 25, 1918, were in effect for the Carthage district.

TABLE 142.—*Revised costs and sales realizations of operators in the Carthage and Cerrillos districts (combined) of New Mexico, August, 1917–December, 1918.*

Period.	Number of operators.	Production.	Total f. o. b. mine cost per ton.	Sales realization per ton.	Margin per ton.
		Tons.			
August, 1917	3	12,058	$2.80	$3.46	$0.66
September–October, 1917	3	21,678	2.96	3.64	.68
November, 1917	3	11,400	3.12	3.69	.57
December, 1917	3	12,739	3.47	4.07	.60
January–March, 1918	4	42,026	3.59	4.19	.60
April, 1918	4	12,830	3.61	4.11	.50
May, 1918	4	12,203	3.68	4.11	.43
June, 1918	4	11,674	3.80	4.01	.21
July, 1918	4	11,752	3.95	3.98	.03
August, 1918	4	13,227	3.88	4.15	.27
September–December, 1918	4	48,138	3.83	4.35	.52

On August 21, 1917, the Government first fixed prices under the Lever Act. The prices fixed by Executive order for the sale of coal not then under contract in these districts, on August 21, 1917, were as follows: Run of mine, $2.40; prepared sizes, $2.65; slack, $2.15. The average proportions which these three classes of coal formed of the total output, based on actual returns for all operators in these two districts who reported to the Federal Trade Commission during the period August–December, 1917, were as follows: Run of mine, 54 per cent; prepared sizes, 28 per cent; slack, 18 per cent. Had the entire output of the three operators been sold at the prices established August 21, 1917, it would have brought them a sales realization of $2.43 per ton. The three operators actually received, during September–October, 1917, a sales realization of $3.64 per ton,

which was 18 cents more than they received during August ($3.46 per ton). The average total f. o. b. mine cost of the three operators was, for September–October, 1917, $2.96 per ton—an increase of 16 cents from that in August. Their average monthly tonnage was 10,839 tons—a decrease from that in August (12,058 tons). Their margin during September–October was 68 cents per ton—an increase of 2 cents over August.

Effective November 1, 1917, a 45-cent increase in the established maximum prices was allowed by Executive order, to take care of an increase in the wage scale which went into effect at that time. The average f. o. b. mine cost of the three operators for November, 1917 ($3.12 per ton), increased 16 cents over that for September–October, 1917. Their output increased slightly (to 11,400 tons). Their average sales realization for November, 1917, was $3.69 per ton (an increase of 5 cents), and their margin 57 cents per ton (a decrease of 11 cents).

Effective November 26, 1917, the Fuel Administration made a change in the existing maximum prices for the two districts. The new prices, including the November 1, 1917, price increase because of the wage increase, were as follows: Run of mine, $4.50; prepared sizes, $5.50; slack, $4. Applying to these prices the proportions (already stated) which these three classes of coal form of the total output, a sales realization of $4.69 per ton was possible had the entire output been sold at the maximum prices. The average total f. o. b. mine cost of the three operators during December, 1917, was $3.47 per ton—an increase of 35 cents over that for November. Their output during December was 12,739 tons—an increase over that of November (11,400 tons). The sales realization in December was $4.07 per ton (an increase of 38 cents over November), and the margin was 60 cents per ton (an increase of 3 cents).

During January–March, 1918, the average total f. o. b. mine cost of the four operators who reported for the 12 months in 1918 was $3.59 per ton; their sales realization, $4.19; and their margin 60 cents per ton.

Effective April 1, 1918, the Fuel Administration established separate maximum prices for each district. The new prices, including the November 1, 1917, price increase because of the wage increase, established for the Cerrillos district were: Run of mine, $4.50; prepared sizes, $5; slack, $4. For the Carthage district they were: Run of mine, $4.70; prepared sizes, $5.50; slack, $4. The prices on prepared sizes for both districts, however, were subject to the following summer reductions: April, 50 cents; May, 40 cents; June, 30 cents; July, 20 cents; August, 10 cents. On September 1 the base price named for prepared sizes in the April 1 order became effective. The total f. o. b. mine cost of the four operators in April was $3.61

per ton—an increase of 2 cents over the average for January-March. Their output in April was 12,830 tons—a decrease from the average for January–March, which was 14,008 tons. The sales realization in April was $4.11 per ton—a decrease of 8 cents from January–March. The margin during April was 50 cents per ton—a decrease of 10 cents from January–March. The total f. o. b. mine cost of the four operators during May, 1918, was $3.68 per ton—an increase of 7 cents from April. The production in May showed a decrease, being 12,203 tons per month as compared with 12,830 tons in April. Their sales realization was $4.11 (the same as April), and the margin 43 cents per ton (a decrease of 7 cents).

Effective May 25, 1918, the Fuel Administration made a reduction of 10 cents per ton in the existing maximum prices for these districts. The four operators had in June, 1918, an average f. o. b. mine cost of $3.80 per ton, an increase of 12 cents per ton over May. Their production decreased to 11,674 tons. Their average sales realization for June, 1918, was $4.01 per ton (a decrease of 10 cents from May) and their margin 21 cents per ton (a decrease of 22 cents).

The average total f. o. b. mine cost of the four operators during July, 1918, was $3.95 per ton—an increase of 15 cents over that for June. Their average output during July, 1918, was 11,752 tons—a slight increase over that for June. Their sales realization in July, 1918, was $3.98 per ton (a decrease of 3 cents from June), and their margin was 3 cents per ton, a decrease of 18 cents. The total f. o. b. mine cost of the four operators during August, 1918, was $3.88 per ton, a decrease of 7 cents from July. Their output during August was 13,227 tons, an increase over July (11,752 tons). The sales realization in August was $4.15 per ton (an increase of 17 cents over July), and the margin was 27 cents per ton (an increase of 24 cents).

Effective August 30, 1918, the Fuel Administration made a change in the maximum prices for the Cerrillos district. The new maximum prices were as follows: Run of mine, $4.50; prepared sizes, $5.50; slack, $4. The average total f. o. b. mine cost of the four operators for the period September–December, 1918, was $3.83 per ton (a decrease of 5 cents from August). Their production decreased, averaging 12,035 per month as compared with 13,227 tons in August. Their sales realization was $4.35 (an increase of 20 cents), and their margin 52 cents per ton (an increase of 25 cents).

RATON DISTRICT.

The significance of the 10 periods selected for presenting the figures for August, 1917–December, 1918, for the Raton district is as follows:

The first two periods (August, 1917, and September–October, 1917) have been described under Gallup district (see p. 241).

November–December, 1917.—Effective October 28, 1917, the Fuel Administration made a change in the maximum prices established for this district. Effective November 1, 1917, a 45-cent increase in maximum prices was allowed by Executive order in consequence of the adoption of a new wage scale (1917–1918) which was higher than that adopted earlier in 1917.

The next seven periods (January–March, 1918; April, 1918; May, 1918; June, 1918; July, 1918; August, 1918; and September–December, 1918) have been described under the Gallup district (see p. 241).

TABLE 143.—*Revised costs and sales realizations of operators in the Raton district of New Mexico, August, 1917–December, 1918.*

Period.	Number of operators.	Production.	Total f. o. b. mine cost per ton.	Sales realization per ton.	Margin per ton.
		Tons.			
August, 1917	2	260,999	$1.43	$2.11	$0.68
September–October, 1917	2	490,492	1.47	2.11	.64
November–December, 1917	2	510,171	1.73	2.59	.86
January–March, 1918	2	774,635	1.78	2.60	.82
April, 1918	2	254,122	1.78	2.52	.74
May, 1918	2	270,071	1.82	2.63	.81
June, 1918	2	245,446	1.86	2.77	.91
July, 1918	2	250,252	1.84	2.98	1.14
August, 1918	2	261,365	1.81	3.10	1.29
September–December, 1918	2	913,197	1.93	3.10	1.17

On August 21, 1917, the Government first fixed prices under the Lever Act. The prices fixed by Executive order for the sale of coal not then under contract in this district on August 21, 1917, were as follows: Run of mine, $2.40; prepared sizes, $2.65; slack, $2.15. The average proportions which these three classes of coal formed of the total output, based on actual returns for all operators in this district who reported to the Federal Trade Commission during the period August–December, 1917, were as follows: Run of mine, 15 per cent; prepared sizes, 45 per cent; slack, 40 per cent. Had the entire output of the two operators been sold at the prices established August 21, 1917, it would have brought them a sales realization of $2.41 per ton. The two operators actually received, during September–October, 1917, a sales realization of $2.11 per ton. The average total f. o. b. mine cost of the two operators was, for September–October, 1917, $1.47 per ton (an increase of 4 cents over that in August), while their average monthly production was 240,246 tons (a decrease from that in August—260,999 tons). Their margin during September–October was 64 cents per ton—a decrease of 4 cents from August.

Effective October 28, 1917, the Fuel Administration made a change in the existing maximum prices for the district. The new prices were as follows: Run of mine, $2.75; prepared sizes, $3.25; slack, $2. Applying to these prices the proportions (already stated), which

these three classes of coal form of the total output, a sales realization of $2.68 per ton was possible had the entire output been sold at the maximum prices. Effective November 1, 1917, a 45-cent increase in the established maximum prices was allowed by Executive order, to take care of an increase in the wage scale which went into effect at that time. The average f. o. b. mine cost of the two operators for November–December, 1917 ($1.73 per ton) increased 26 cents over that for September–October, 1917, this increase being principally attributable to the higher wage scale. Their output increased to an average of 255,086 tons per month. Their average sales realization for November–December, 1917, was $2.59 per ton (an increase of 48 cents), and their margin 86 cents per ton (an increase of 22 cents).

During January–March, 1918, the average total f. o. b. mine cost of the same two operators (who reported for the 12 months in 1918) was $1.78 per ton—an increase of 5 cents over November–December. Their average monthly production increased slightly to 258,211 tons. Their sales realization was $2.60 (an increase of 1 cent), and their margin 82 cents per ton (a decrease of 4 cents).

Effective April 1, 1918, new maximum prices were fixed by the Fuel Administration for the district. The new prices, including the 45-cent increase effective November 1, 1917, because of the wage increase, were as follows: Run of mine, $2.80; prepared sizes, $3.70; slack or screenings, $2.10. The price on prepared sizes, however, was subject to the following summer reductions: April, 50 cents; May, 40 cents; June, 30 cents; July, 20 cents; and August, 10 cents. On September 1 the base price named for prepared sizes in the April 1 order became effective. Applying the proportions of run of mine, prepared sizes, and slack, already stated for this district, the two operators would have received, had they sold their entire output at the April prices, a possible sales realization of $2.70 per ton. Their average total f. o. b. mine cost for April was $1.78 per ton—the same as the average of January–March, 1918. Their production for April was 254,122 tons—a slight decrease from the average of January–March (258,211 tons). Their average sales realization for April, 1918, was $2.52 per ton (a decrease of 8 cents), and their margin was 74 cents (a decrease of 8 cents).

The possible sales realization at the prices in effect for May, 1918, was $2.75 per ton had the entire output been sold at the maximum prices. The total f. o. b. mine cost of the two operators during May, 1918, was $1.82 per ton—an increase of 4 cents over March. Their production in May showed an increase, being 270,071 tons, as compared with that for April of 254,122 tons. Their sales realization was $2.63 (an increase of 11 cents), and their margin 81 cents per ton (an increase of 7 cents).

Effective May 25, 1918, the Fuel Administration made a 10-cent reduction in the existing maximum prices for the district. The possible sales realization at the district prices in effect for June, 1918, was $2.69 per ton. The f. o. b. mine cost of the two operators for June, 1918 ($1.86 per ton), increased 4 cents over that for May. Their output decreased to 245,446 tons. Their average sales realization for June, 1918, was $2.77 per ton (an increase of 14 cents), and their margin 91 cents per ton (an increase of 10 cents).

The possible sales realization at the district prices in effect for July, 1918, was $2.74 per ton. The f. o. b. mine cost of the two operators for July, 1918 ($1.84 per ton), decreased 2 cents from that for June. The output increased to 250,252 tons. Their average sales realization for July was $2.98 per ton (an increase of 21 cents over June), and their margin $1.14 per ton (an increase of 23 cents).

The possible sales realization at the district prices in effect for August, 1918, was $2.78 per ton. The average f. o. b. mine cost for the two operators during August was $1.81 per ton—a decrease of 3 cents from July. The production increased to 261,365 tons. The sales realization during August was $3.10 per ton (an increase of 12 cents over July), and the margin $1.29 per ton (an increase of 15 cents).

The possible sales realization at the district prices in effect from September 1, 1918, to the end of the year was $2.83 per ton. The total f. o. b. mine cost for the two operators during September–December, 1918, was $1.93 per ton—an increase of 12 cents from that of August. There was a marked decrease in the output, the production in September–December, 1918, averaging 228,299 tons per month. Their sales realization in September–December was $3.10 (the same as August), and the margin $1.17 per ton (a decrease of 12 cents).

CHAPTER X.—MONTANA.

Part I. Introduction.

1. Definition of the district.

All operators in the State were considered as being in one district, and maximum prices for their output were fixed by the Fuel Administration on that basis.

The location of the coal fields is shown on the map of Montana (facing p. 252).

2. General statistics of output.

The statistics in this section have been compiled from reports published by the United States Geological Survey.

The proportion which the output of Montana has formed of the total bituminous coal output of the United States is as follows:

	Per cent.		Per cent.
1911	0.7	1915	0.6
1912	.7	1916	.7
1913	.7	1917	.8
1914	.7	1918	.8

The United States Geological Survey has collected information on the "average value per ton" for a long series of years. This average is obtained by dividing the total selling value by the total tonnage.[33] The following table shows this information for 1911–1918:

TABLE 144.—*Production and average value, 1911–1918, for the State of Montana.*

Year.	Production.	Average value per ton.
	Tons.	
1911	2,976,358	$1.79
1912	3,048,495	1.82
1913	3,240,973	1.74
1914	2,805,173	1.75
1915	2,789,755	1.62
1916	3,632,527	1.73
1917	4,226,689	2.11
1918	4,532,505	2.53

[33] "The value of coal given in this report is the realization value at the mine f. o. b. cars, and the average value per ton is the average realization price obtained by dividing the total value by the number of tons sold or produced. The coal used at the mine, the coal coked by the producing company, and the coal used in some other industry, by the company operating the mine—an appreciable proportion of the whole—is never sold, and the value placed upon it is either an estimate or the figure at which it is carried on the books, either of which is supposedly based on what the coal would have brought if sold or what other fuel for the respective purpose would have cost if its purchase had been necessary. In other words, the values given represent returns to the operators for coal sold, plus estimated exchange value of that not sold. These figures do not necessarily show prices or even an average of the prices of coal at the mine." U. S. Geological Survey (Mineral Resources of the United States, 1917. Part II, p. 952).

In its reports for 1916 and 1917 the United States Geological Survey published "average values" in more detail than in previous reports. The following table is compiled from statistics appearing in the 1916 and 1917 reports:

TABLE 145.—*Disposition of product and average values, for the State of Montana, 1916–1917.*

	1916 production.	Average value per ton.	1917 production.	Average value per ton.
	Tons.		*Tons.*	
Loaded at mines for shipment	3,350,665	$1.74	3,882,919	$2.12
Sold to local trade and used by employees	142,130	2.33	176,066	2.61
Used at mines for steam and heat	139,732	.81	167,704	1.39
Total	3,632,527	1.73	4,226,689	2.11

3. Character of the consumption of Montana coal.

As is the case in many of the coal fields west of the Middle Atlantic States, a considerable portion of the output of bituminous coal in Montana goes into domestic consumption. The proportion thus used is influenced partly by the nature of the coal, partly by the availability of substitutes, and partly by the extent of preparation given the coal for the purpose of adapting it to domestic use.

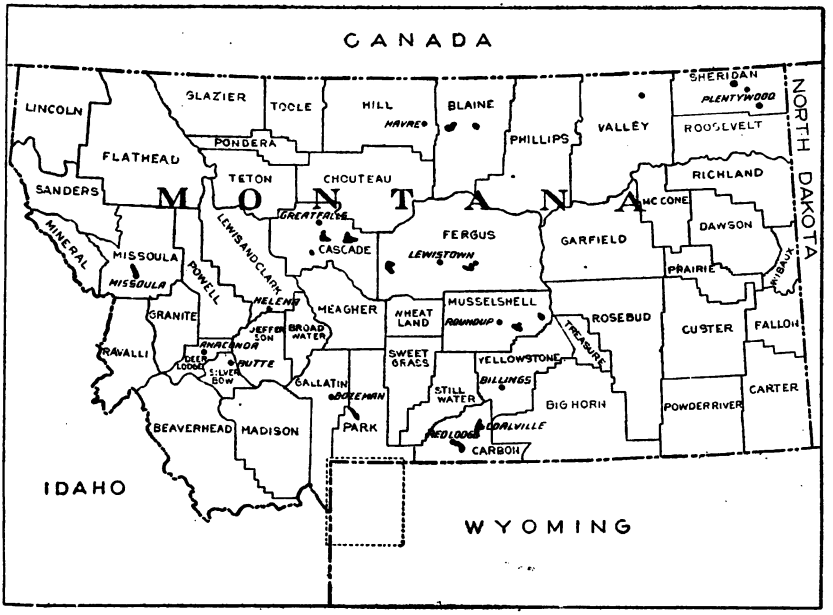
The exact extent to which the coal from this State enters into domestic use is not definitely ascertainable from any figures at present available. In the 1915 report of the United States Geological Survey [34] some statistics of the distribution of bituminous coal by classes of consumers for Montana are shown. From these the percentages of consumption shown in the following statement have been compiled:

	Per cent.
Railroad	37.6
Domestic and small steam trade	43.5
Industrial steam trade	14.5
Mine fuels	4.4
Total output (tons)	2,789,755

The following statistics of distribution of shipments of bituminous coal, northern Wyoming and Montana, by classes of consignees, August 3, 1918, to February 1, 1919, are taken from an unpublished manuscript of the Geological Survey and are published by permission of that bureau:

[34] Mineral Resources of the United States, 1915. Part II, pp. 471–472.

MONTANA
BITUMINOUS COAL FIELDS



	Per cent.
Railroad fuel	53.3
United States Government	.6
State and county institutions	.6
Public utilities, gas and electric	1.9
Retail dealers	31.0
Industries, including iron and steel	12.6
	100.0

This use of coal for domestic consumption introduces, to a greater or less extent, changes in the character of the seasonal demand. In Report No. 2, on Pennsylvania anthracite, the commission pointed out the wide differences between the character of the demand for coal for domestic consumption and the demand for industrial use. If the coal is of a nature which can be stored without undue fire risk, and if the domestic consumer can be induced to buy his coal during the summer, the domestic demand has a less seasonal character than where such conditions do not exist. Despite the marked seasonal fluctuations, the annual domestic demand is likely to be a fairly constant quantity from year to year. On the other hand, the industrial demand for coal, while not always subject to such extreme seasonal fluctuations as that of coal for domestic use, is likely to vary to a much greater extent from year to year, influenced as it is primarily by periods of industrial prosperity or depression.

Part II. 1918 costs and sales realizations.

1. Number and extent of operations covered.

The 1918 production of the 18 operators in Montana from whom cost reports were obtained by the commission, was as follows:

	Tons.	Per cent.
17 operators from whom costs were obtained for 12 months	4,336,051	99.8
1 operator from whom cost were obtained for 12 months, but which were excluded for certain reasons	9,060	.2
Total	4,345,111	100.0

The above figures are shown *inclusive* of power-house fuel, for comparison with the United States Geological Survey statistics. The total output of the 17 operators from whom costs were obtained for 12 months was, *exclusive* of power-house coal, 4,134,686 tons.

According to statistics issued by the Geological Survey the output of Montana during 1918 was 4,532,505 tons, of which 175,532 tons were used at the mine for steam and heat. The commission obtained cost information on 4,345,111 tons produced in 1918 (including power-house fuel), forming 96 per cent of the total as reported by

the Survey. It publishes in this report cost information on 4,134,686 tons of commercial production, which is 95 per cent of the output reported by the Survey, after the exclusion of mine fuel.

2. Classification of producers by number of mines operated.

The costs of the 17 operators shown in the tabulation for Montana cover the output of 26 mines. The following table shows the number of mines operated by the different producers:

TABLE 146.—*Number of mines operated by different producers in Montana.*

Number of mines run by each operator.	Number of operators.	Proportion of total number.	Production tonnage, 1918.	Proportion of total production
		Per cent.	*Tons.*	*Per cent.*
1 mine	12	70.5	2,346,599	56.8
2 mines	2	11.8	715,046	17.3
3 mines	2	11.8	549,870	13.3
4 mines	1	5.9	523,171	12.6
Total (number of mines, 26)	17	100.0	4,134,686	100.0

It will be seen that in the State 12 producers (about 71 per cent of the total number shown in the table) operated only one mine each and produced about 57 per cent of the output.

The average number of mines operated by a producer was 1.5. The average annual production per mine was 159,026 tons for the State, 195,550 tons for the 12 one-mine operators, and 127,721 tons for the 5 operators of two or more mines.

The number and size of mines in Montana are shown in further detail in the report for 1917 of the United States Geological Survey, from which the following statistics are derived:[35]

Annual output of mines.	Mines.		Tonnage.	
	Number.	Proportion of total in State.	Average production per mine.	Proportion of total State output.
		Per cent.	*Tons.*	*Per cent.*
200,000 tons and over	7	7.4	400,178	66.3
100,000 to 199,999 tons	4	4.3	151,185	14.3
50,000 to 99,999 tons	9	9.6	62,225	13.3
10,000 to 49,999 tons	7	7.4	23,110	3.8
Under 10,000 tons	67	71.3	1,476	2.3
State	94	100.0	44,965	100.0

[35] Mineral Resources of the United States, 1917. Part II, pp. 947–948.

3. Classification of producers by size of output.

The 17 producers tabulated for Montana are classified by size of their output in 1918, exclusive of power-house fuel, as follows:

TABLE 147.—*Classification of 17 Montana operators by size of output.*

Production during 1918.	Number of operators.	Proportion of total number.	Tonnage produced, 1918.	Proportion of total production.
		Per cent.	*Tons.*	*Per cent.*
Under 50,000 tons	6	35.3	199,746	4.8
50,000 to 99,999 tons	1	5.9	50,062	1.2
100,000 to 499,999 tons	7	41.2	1,815,514	43.9
500,000 tons and over	3	17.6	2,069,364	50.1
Total	17	100.0	4,134,686	100.0

4. The 1918 costs and sales realizations.

There was no change in the official wage scale for bituminous coal miners in Montana during 1918. Therefore the labor costs per ton for the period were principally affected by changes in the production tonnage and not by changes in the rate of wages paid labor. The effect of decreased production in increasing labor costs can be clearly seen on Diagram XIII (opposite p. 258) and Charts 30 and 31 (opposite p. 260).

Tables 73 to 77 in the appendix to this report (see pp. 430–434) show the costs and the sales realizations arranged from low to high in 10-cent groupings for each period shown. Throughout the tables the costs are shown for the same operators, but the costs of any given operator do not necessarily hold the same relative position in the 10-cent groups at each period. The shift of any operator in his relative position, from period to period, is generally slight.

The tables show, for each quarter and for the year as a whole, by 10-cent groupings, the tonnage produced at that cost, its per cent of the total production, the place of the group in the accumulated percentage, and the number of operators whose costs fell within each 10-cent group.

A summary of the significant facts brought out in Appendix Tables 73 to 77 appears in the following table, in which are compared the true average cost and sales realization, the range of 90 per cent of the output which had the lowest costs and sales realizations, and the extreme range for the entire output of the 17 operators.

TABLE 148.—*1918 quarterly and yearly revised costs and sales realization for 17 operators in the State of Montana, showing averages and range for 90 per cent and 100 per cent of total output.*

Period.	Costs per net ton.												Sales realization per net ton.		
	Labor.			Supplies.			General expense.			Total f. o. b. mine.					
	Average.	Range.		Average.	Range.		Average.	Range.		Average.	Range.		Average.	Range.	
		90 per cent output.	100 per cent output.		90 per cent output.	100 per cent output.		90 per cent output.	100 per cent output.		90 per cent output.	100 per cent output.		90 per cent output.	100 per cent output.
January-March	$1.78	$1.00-$2.13	$1.00-$3.79	$0.23	$0.00-$0.33	$0.00-$0.62	$0.21	$0.11-$0.31	$0.11-$0.67	$2.22	$1.40-$2.62	$1.40-$5.08	$2.54	$1.80-$3.21	$1.80-$3.37
April-June	1.80	1.01- 2.10	1.01- 3.29	.25	.07- .35	.07- .67	.22	.13- .32	.13- .64	2.27	1.57- 2.75	1.57- 4.09	2.47	1.77- 3.00	1.77- 3.40
July-September	1.76	1.11- 1.94	1.11- 3.17	.24	.09- .34	.09- .51	.21	.14- .31	.14- .60	2.21	1.64- 2.45	1.64- 4.00	2.59	1.80- 3.14	1.80- 3.39
October-December	1.92	1.14- 2.94	1.14- 3.40	.32	.00- .41	.00- .52	.22	.15- .31	.15- .47	2.46	1.70- 3.58	1.70- 4.24	2.61	1.80- 3.22	1.80- 3.39
Year	1.82	1.08- 2.19	1.08- 3.33	.25	.05- .33	.05- .47	.22	.13- .33	.13- .58	2.29	1.57- 2.66	1.57- 4.18	2.56	1.80- 3.17	1.80- 3.39

The proportion of the total output of Montana mined by machines is stated by the United States Geological Survey to have been 49 per cent in 1917.

5. Relation of the costs to the sales realizations.

The following table shows the distribution, by quarters and for the year 1918, between the items of labor, supplies, general expense, and margin of each dollar of sales realization received by the operator:

TABLE 149.—*Distribution of the amount paid by the purchaser between the various principal costs and the margin, based on each dollar of sales realization, for the State of Montana, 1918, by quarters and for the year.*

Period.	Costs.				Margin.
	Labor.	Supplies.	General expense.	Total f. o. b. mine.	
State:	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*
January–March	70	9	8	87	13
April–June	73	10	9	92	8
July–September	68	9	8	85	15
October–December	69	12	9	90	10
Year	70	10	8	88	12

These facts are shown in graphic form in Chart 32 (facing p. 260).

6. Comparison of claimed and revised costs.

The foregoing tables present costs which have in some cases been revised by the accountants of the commission from the claimed figures reported on the original schedules by the operators. Table 78 in the appendix to this report shows the claimed 1918 costs, compiled in all cases directly from the figures submitted by the operators.

The changes brought about through the revision in the average costs for the year 1918 for the 17 operators were as follows:

Item.	Claimed costs.	Revised costs.	Increase (I) or decrease (D) due to revision.
Production (tons)	4,336,051	4,134,686	[1] 201,365 (D)
Labor ... per ton	$1.73	$1.79	$0.06 (I)
Supplies ... do	.31	.25	.06 (D)
General expense ... do	.27	.22	.05 (D)
Total f. o. b. mine ... do	2.31	2.26	.05 (D)

[1] Due to exclusion of power-house fuel.

The increase of 6 cents in the average State revised labor cost over the claimed is caused by the use of the revised production tonnage as a divisor. The total claimed labor cost was $7,512,104, and the total revised labor cost was $7,391,608. The downward revision resulted from the exclusion by the commission of charges covering expenditures for development which had been included by some of the operators. Revisions were also made in the items of supplies and general expense, resulting in a decrease of 6 and 5 cents, respectively.

The costs claimed by some of the operators were obviously open to question as to their accuracy. Such operators were required by the commission to furnish detailed information in support of the claimed costs. The examination of such detailed information revealed the fact that they had often included in their supplies, charges for additions and betterments, and in their general expenses, officers' salaries greatly in excess of those paid in neighboring operations of similar size, and excessive charges for depletion which had not been computed in accordance with the instructions issued by the commission. In a few instances donations had been charged to operating costs.

7. 1918 costs shown by thickness of seam.

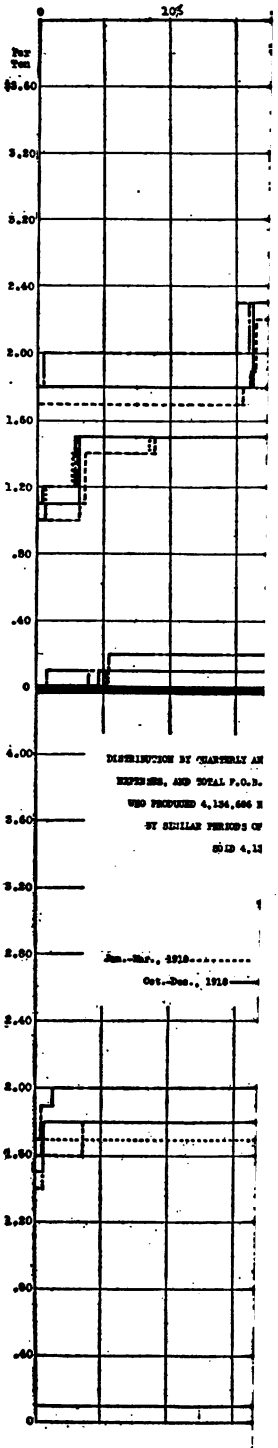
About 43 per cent of the output of Montana came from five producers who operated more than one mine. Most of these producers did not report the costs of each mine separately. In order to include them in a tabulation to show costs by thickness of seam it was necessary to use the average of the seams mined by them. This has led to the inclusion of data in the tabulation for the 17 operators, which to a slight extent vitiates its scientific value, since it is not known whether equal tonnage was derived from mines which had seams above or below the average thickness. The tabulation by thickness of seam for the 17 operators follows:

TABLE 150.—*Seam tabulation of revised costs for 17 operators in Montana.*

Thickness of seam.	Number of operators.	Production, 1918.	Costs per ton.			
			Labor.	Supplies.	General expense.	Total f. o. b. mine.
		Tons.				
48 to 59 inches	3	193,130	$2.22	$0.25	$0.35	$2.82
60 to 71 inches	3	692,839	1.75	.18	.29	2.22
72 to 83 inches[1]	11	3,248,717	1.81	.27	.19	2.27
Total	17	4,134,686	1.81	.26	.22	2.29

[1] Includes 1 operator with a 90-inch seam.

DIAGRAM XIII



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The proportion of output distributed among the different thicknesses of seam is shown in the following table for the total 17 operators and for the 12 one-mine operators:

TABLE 151.—*Distribution, between seams, of output of 17 operators and 12 one-mine operators in the State of Montana.*

Thickness of seam.	17 operators, producing 4,134,686 tons in 1918.		12 operators, producing 2,346,599 tons in 1918.	
	Number of operators.	Per cent of output.	Number of operators.	Per cent of output.
48 to 59 inches	3	4.7	2	3.0
60 to 71 inches	3	16.8	2	8.0
72 to 83 inches [1]	11	78.5	8	89.0
Total	17	100.0	12	100.0

[1] Includes one operator with a 90-inch seam.

The tabulation of cost by thickness of seam for the 12 one-mine operators follows:

TABLE 152.—*Seam tabulation of revised costs for 12 one-mine operators in Montana.*

Thickness of seam.	Number of operators.	Production, 1918.	Costs per ton.			
			Labor.	Supplies.	General expense.	Total f. o. b. mine.
		Tons.				
48 to 59 inches	2	73,146	$1.94	$0.26	$0.37	$2.57
60 to 71 inches	2	194,160	1.75	.11	.34	2.20
72 to 83 inches [1]	8	2,079,293	1.69	.28	.18	2.15
Total	12	2,346,599	1.70	.26	.21	2.17

[1] Includes one operator with a 90-inch seam.

General expense is less affected than labor cost by conditions of a physical nature, like thickness of seam, but is closely connected with the commercial and financial economies of operation. The following comparison of the 12 one-mine operators with the 5 operators of two or more mines is of interest:

TABLE 153.—*Comparison of average revised costs: Operators of one mine with operators of two or more mines in Montana.*

	Number of operators.	Number of mines.	Output, 1918.			Costs per ton.			
			Total output.	Output per operator.	Output per mine.	Labor.	Supplies.	General expense.	Total f. o. b. mine.
State:			*Tons.*	*Tons.*	*Tons.*				
1 mine	12	12	2,346,599	195,550	195,550	$1.70	$0.26	$0.21	$2.17
2 or more mines	5	14	1,788,087	357,617	127,721	1.90	.25	.23	2.38
Total	17	26	4,134,686	243,217	159,026	1.79	.25	.22	2.26

It will be noted that in Montana the general expense costs of the one-mine operators averaged 2 cents lower than those of operators of two or more mines.

Part III. Comparative costs and sales realizations for 1916, 1917, and 1918.

The commission obtained for the year 1916, and by months for 1917 and 1918, the cost and sales realizations of 10 operators. They mined about 2,250,000 tons annually. Figures for 1917 and 1918 were obtained for two additional operators, the production of the 12 being about 3,250,000 tons annually. That part of the information which deals with the period prior to August, 1917, was obtained by accountants of the commission directly from the records of the operators. This information was obtained at the request and with the cooperation of Gov. Stewart, of Montana. The information from August, 1917, to December, 1918, was reported by the operators directly to the commission.

1. Representativeness of statistics presented.

In order that the costs and sales realizations of these 10 operators should be accepted as typical of the State, they must be shown to be of a fairly representative character. In 1916 the 10 operators produced 50.3 per cent, and in 1917 51.3 per cent of the commercial tonnage of the State, as derived from reports of the United States Geological Survey. In 1918 they produced 58.5 per cent of the tonnage reported by the Federal Trade Commission.

In respect to the quantity produced, the 10 operators produce a substantial proportion of the total output, and in that respect can be considered representative.

The representativeness of the sales realizations in 1916 and 1917 of the 10 operators may be judged by comparison with the "average value per ton" figures derived for the State from the Geological Survey reports for 1916 and 1917, by using the value of tonnage "loaded at the mines for shipment" and "sold to local trade and used by employees." Such a comparison follows:

	1916	1917
United States Geological Survey average value	$1.77	$2.14
Federal Trade Commission sales realization	1.73	2.24

A comparison of the average f. o. b. mine costs and the average sales realizations of the 10 operators in Table 157 and the 12 oper-

BITUMINOUS COAL — MONTANA

CHART 30. — Production tonnage by quarters for 1918, of 17 Operators in Montana

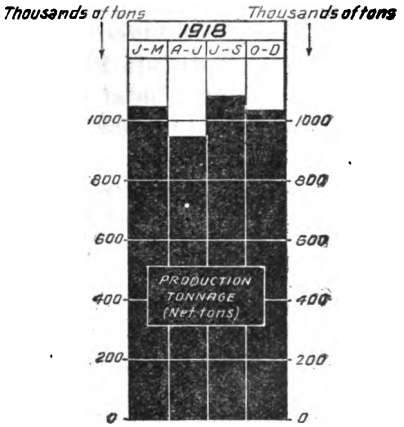


CHART 32. — Distribution of Amount paid by purchaser between the various principal Costs and the Margin, based on each dollar of Sales Realization, by quarters in 1918 in Montana.

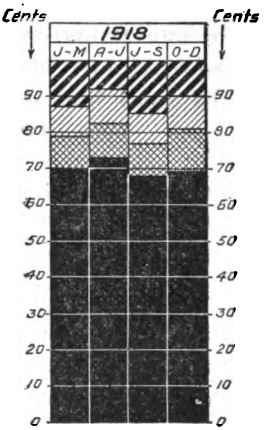
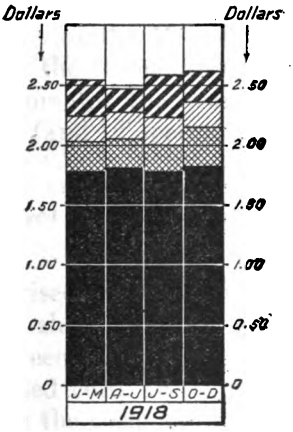


CHART 31. — Average Costs and Sales Realizations per ton, by quarters for 1918, of 17 Operators in Montana.



Labor

Supplies

Gen'l Expenses

Margin

ators in Table 158 with those of 19 operators in Montana during August–December, 1917, follows:

Period.	Average f. o. b. mine cost per ton.			Average sales realization per ton.		
	19 operators.	10 operators.	12 operators.	19 operators.	10 operators.	12 operators.
August–October, 1917	$1.97	$1.95	$1.91	$2.26	$2.39	$2.27
November, 1917	2.31	2.02	2.06	2.70	2.57	2.55
December, 1917	2.40	2.19	2.17	2.76	2.74	2.65

The representativeness of the costs and sales realizations of the 10 and the 12 operators in 1918 is shown by the comparisons in the following table between their average figures and those of the 17 operators who produced 4,134,686 tons in 1918:

TABLE 154.—*Comparison of average revised costs and sales realizations per ton for 1918 of 17 operators with 10 and 12 operators in Montana.*

Item.	January–March.			April–June.			July–September.			October–December.			Year.		
	17 operators.	10 operators.	12 operators.	17 operators.	10 operators.	12 operators.	17 operators.	10 operators.	12 operators.	17 operators.	10 operators.	12 operators.	17 operators.	10 operators.	12 operators.
Labor	$1.78	$1.70	$1.73	$1.80	$1.74	$1.77	$1.76	$1.71	$1.74	$1.81	$1.76	$1.78	$1.79	$1.73	$1.75
Supplies	.23	.19	.22	.25	.22	.26	.24	.21	.24	.32	.29	.32	.25	.23	.26
General expense	.21	.23	.21	.22	.25	.22	.21	.23	.21	.22	.22	.21	.22	.23	.21
Total f. o. b. mine cost	2.22	2.12	2.12	2.27	2.21	2.25	2.21	2.15	2.19	2.35	2.27	2.31	2.26	2.19	2.22
Sales realization	2.54	2.50	2.48	2.47	2.39	2.37	2.59	2.56	2.53	2.61	2.60	2.56	2.56	2.52	2.49

The general close correspondence of the costs, and also the sales realizations of the 10 operators (and 12 operators) with those obtained for the 19 operators during August–December, 1917, and the 17 operators for the year 1918, shows that the figures for the 10 operators (and 12 operators) can be considered representative of the State.

2. The revised costs, sales realizations, and production figures and analyses of the fluctuations, 1916–1918.

The revised costs and the sales realizations of the operators combined are shown in this section for different periods. The difference between the revised and claimed costs is so immaterial that only revised costs are shown. In the upper division of Table 157 are shown the costs and sales realizations for the year 1916 and for each month of 1917 and 1918. In the second division these costs and sales realizations are shown for periods of varying length, which

correspond to the duration of certain conditions which had great influence on the costs and the sales realizations. In the third division of the table are shown the figures by calendar years.

In Table 155 the distribution of the total f. o. b. mine costs and sales realizations, and in Table 156 the amounts by which the f. o. b. mine costs exceeded the sales realizations, or were exceeded by them, are shown for the year 1916 for the 10 operators:

TABLE 155.—*Distribution of the total f. o. b. mine costs and sales realizations per ton of 10 operators in Montana for the year 1916.*

10-cent groupings per ton.	Total f. o. b. mine cost.	Sales realization.	10-cent groupings per ton.	Total f. o. b. mine cost.	Sales realization.
	Per cent.	*Per cent.*		*Per cent.*	*Per cent.*
$1.20 to $1.29	2.5	.....	$2.00 to $2.09	.....	6.6
$1.30 to $1.39	35.0	39.9	$2.10 to $2.19	2.7	1.6
$1.40 to $1.49	24.1	.....	$2.20 to $2.29	.....	.....
$1.50 to $1.59	26.4	3.7	$2.30 to $2.39	.....	12.6
$1.60 to $1.69	1.6	.....	$2.40 to $2.49	.....	.....
$1.70 to $1.79	5.5	8.2	$2.50 to $2.59	1.4	.....
$1.80 to $1.89	.....	.....			
$1.90 to $1.99	.8	27.4	Total	100.0	100.0

TABLE 156.—*Distribution of the amounts per ton by which the total f. o. b. mine costs exceeded, or were exceeded by, the sales realizations of 10 operators in Montana for the year 1916.*

5-cent groupings per ton.	Proportion of output.	5-cent groupings per ton.	Proportion of output.
Total f. o. b. mine cost exceeded sales realization by—	*Per cent.*	Sales realization exceeded total f. o. b. mine cost by—	*Per cent.*
25 cents or more	2.5	0 to 4 cents	39.
20 to 24 cents	.....	5 to 9 cents	6.4
15 to 19 cents	.....	10 to 14 cents	1.8
10 to 14 cents	.....	15 to 19 cents	.....
5 to 9 cents	.....	20 to 24 cents	2.8
0 to 4 cents	.....	25 cents or more	46.6
Total	2.5	Total	97.5
		Grand total	100.0

The significance of the nine periods selected for presenting the figures for 1916–1918, for the State of Montana, is as follows:

Year 1916.—This period reflects the situation for the calendar year prior to the entrance of the United States into the war. Only the figures for 1916 as a whole were obtained.

January–March, 1917.—During this period the 1916 wage scale was still in operation and much coal was being sold on contracts based on that wage scale. The imminence of war affected prices more than costs.

April–August, 1917.—War was begun. A new wage scale went into operation about June 1, 1917. The contracts for the sale of

coal entered into were generally at much higher prices than previous contracts, while the "spot" market advanced.

September–October, 1917.—This period directly followed the fixing, by Executive order of August 21, 1917, of maximum prices for bituminous coal not sold under contracts made prior to that date and the establishment of a Fuel Administration to regulate the fuel situation. The 1917 wage scale continued in operation during these two months.

November, 1917–February, 1918.—This period followed the change in maximum prices, effective October 27, 1918, made by the Fuel Administration for the State, and also the 45-cent increase in the maximum prices allowed by Executive order in consequence of the adoption of a new wage scale (1917–18), which was higher than that adopted earlier in 1917. Many of the contracts made prior to August 21, 1917, continued through this period.

March, 1918.—Effective March 1, 1918, the Fuel Administration made a change in the existing maximum prices for the State.

April, 1918.—During this period the prices fixed March 1, 1918, continued in effect.

May, 1918.—Effective May 1, 1918, the Fuel Administration made a change in the existing maximum prices for the State. Effective May 25, 1918, a 10-cent reduction was made by the Fuel Administration in the existing maximum prices.

June–December, 1918.—This period followed the reduction made by the Fuel Administration of 10 cents per ton, effective May 25, 1918, in the maximum prices for the district. Throughout this period the official maximum prices remained unchanged, and the 1917–18 wage scale continued in effect.

TABLE 157.—*Revised costs and sales realizations of 10 operators mining about 2,250,000 tons annually in the State of Montana, 1916–1918.*

Period.	Production.	Costs per ton.				Sales realization per ton.	Margin per ton (realization over f. o. b. mine cost).
		Labor.	Supplies.	General expense.	Total f. o. b. mine.		
	Tons.						
Year 1916	1,758,775	$1.13	$0.15	$0.20	$1.48	$1.73	$0.25
1917.							
January	220,830	1.13	.14	.16	1.43	2.03	.60
February	169,163	1.17	.17	.19	1.53	2.03	.50
March	199,910	1.15	.13	.16	1.44	1.88	.44
April	147,024	1.23	.20	.21	1.64	1.88	.24
May	170,858	1.24	.20	.18	1.62	1.84	.22
June	139,312	1.43	.23	.21	1.87	2.30	.43
July	145,111	1.43	.21	.22	1.86	2.41	.55
August	142,534	1.51	.20	.27	1.98	2.56	.58
September	151,221	1.52	.22	.26	2.00	2.43	.43
October	202,149	1.45	.18	.25	1.88	2.23	.35
November	200,571	1.60	.15	.27	2.02	2.57	.55
December	194,766	1.70	.19	.30	2.19	2.74	.55

TABLE 157.—*Revised costs and sales realizations of 10 operators mining about 2,250,000 tons annually in the State of Montana, 1916–1918*—Continued.

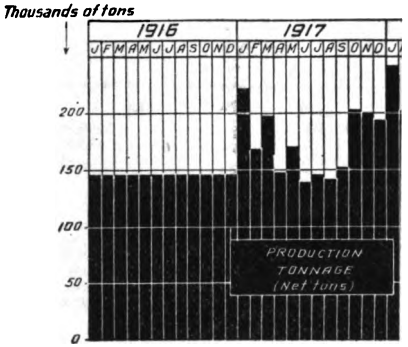
Period.	Production.	Cost per ton.				Sales realization per ton.	Margin per ton (realization over f. o. b. mine. cost).
		Labor.	Supplies.	General expense.	Total f. o. b. mine.		
1918.	*Tons.*						
January	241,000	$1.70	$0.19	$0.20	$2.09	$2.64	$0.55
February	201,912	1.66	.20	.23	2.09	2.46	.35
March	180,165	1.75	.18	.26	2.19	2.36	.17
April	169,327	1.76	.25	.25	2.26	2.26	.00
May	196,964	1.71	.19	.24	2.14	2.41	.27
June	173,029	1.77	.22	.25	2.24	2.48	.24
July	226,097	1.68	.18	.22	2.08	2.55	.47
August	219,951	1.71	.20	.23	2.14	2.48	.34
September	197,667	1.76	.25	.24	2.25	2.66	.41
October	235,249	1.70	.28	.20	2.18	2.61	.43
November	184,615	1.78	.31	.23	2.32	2.57	.25
December	194,561	1.81	.30	.23	2.34	2.62	.28
Year 1916	1,758,775	1.13	.15	.20	1.48	1.73	.25
January–March, 1917	589,903	1.15	.14	.17	1.46	1.98	.52
April–August, 1917	744,839	1.36	.21	.22	1.79	2.19	.40
September–October, 1917	353,370	1.48	.19	.26	1.93	2.32	.39
November, 1917–February, 1918	838,339	1.67	.18	.24	2.09	2.[illegible]0	.51
March, 1918	180,165	1.75	.18	.26	2.19	2.36	.17
April, 1918	169,327	1.76	.25	.25	2.26	2.26	.....
May, 1918	196,964	1.71	.19	.24	2.14	2.41	.27
June–December, 1918	1,431,169	1.74	.25	.23	2.22	2.57	.35
Year 1916	1,758,775	1.13	.15	.20	1.48	1.73	.25
Year 1917	2,083,449	1.38	.18	.22	1.78	2.24	.46
Year 1918	2,420,627	1.73	.23	.23	2.19	2.52	.33

The information appearing in the first two divisions of Table 157 is shown in graphic form in Chart 33 (opposite).

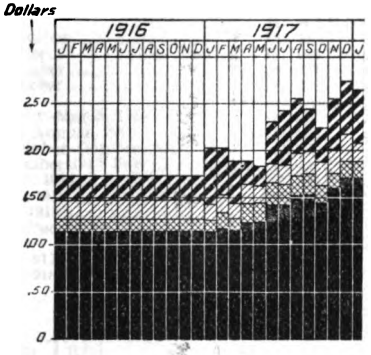
It was possible, for the period 1917–18, to use the reports of two operators for whom no 1916 information was obtained. Combining the figures of these two operators with those shown in Table 157 increases the annual tonnage about 1,000,000 tons (about 40 per cent). For the period 1917–18 the figures in Table 158 can be considered as more typical of the State than those of Table 157. The figures in Table 158, however, can not be used in strict comparison with the 1916 figures shown in Table 157. For this reason both tables are shown, though there is generally slight practical difference between deductions to be drawn from their figures.

CHART 33.—Production, Average Costs and Sa
Jan. 1916 to Dec. 1918, of Operators pr
2,250,000 tons annually in Montana.

A. Production, monthly average for 191
for 1917 and 1918.



B. Average Costs and Sales Realiza
whole, 1917 and 1918 by months.



C. Average Costs and Sales Real.
Specified periods, during Jan. 1916 -

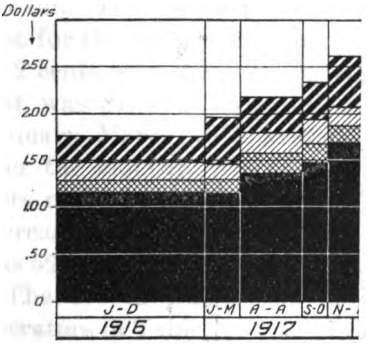


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TABLE 158.—*Revised costs and sales realizations of 12 operators mining about 3,250,000 tons annually in the State of Montana, 1917–1918.*

Period.	Production.	Costs per ton.				Sales realization per ton.	Margin per ton (realization over f. o. b. mine cost).
		Labor.	Supplies.	General expense.	Total f. o. b. mine.		
1917.	*Tons.*						
January	324,944	$1.17	$0.17	$0.14	$1.48	$2.03	$0.55
February	260,455	1.20	.18	.17	1.55	2.03	.48
March	305,021	1.19	.15	.14	1.48	1.92	.44
April	241,890	1.25	.21	.18	1.64	1.93	.29
May	273,882	1.24	.21	.16	1.61	1.90	.29
June	231,498	1.43	.20	.18	1.81	2.13	.32
July	232,510	1.44	.21	.19	1.84	2.25	.41
August	236,396	1.48	.21	.22	1.91	2.38	.47
September	237,272	1.49	.22	.23	1.94	2.32	.38
October	296,917	1.46	.19	.22	1.87	2.15	.28
November	296,517	1.63	.20	.23	2.06	2.55	.49
December	296,622	1.70	.23	.24	2.17	2.65	.48
1918.							
January	337,596	1.73	.22	.19	2.14	2.60	.46
February	285,100	1.71	.22	.20	2.13	2.44	.31
March	267,368	1.77	.21	.23	2.21	2.37	.16
April	254,392	1.75	.29	.22	2.26	2.28	.02
May	291,482	1.72	.23	.22	2.17	2.38	.21
June	224,379	1.85	.26	.24	2.35	2.47	.12
July	315,536	1.70	.22	.20	2.12	2.52	.40
August	311,408	1.73	.23	.21	2.17	2.49	.32
September	283,460	1.78	.27	.23	2.28	2.60	.32
October	331,969	1.72	.30	.19	2.21	2.57	.36
November	260,724	1.81	.34	.22	2.37	2.53	.16
December	282,318	1.82	.33	.21	2.36	2.59	.23
January–March, 1917	890,420	1.18	.17	.15	1.50	1.99	.49
April–August, 1917	1,216,176	1.36	.21	.19	1.76	2.12	.36
September–October, 1917	534,182	1.47	.21	.22	1.90	2.23	.33
November, 1917–February, 1918	1,216,035	1.69	.22	.22	2.13	2.56	.43
March, 1918	267,368	1.77	.21	.23	2.21	2.37	.16
April, 1918	254,392	1.75	.29	.22	2.26	2.28	.02
May, 1918	291,482	1.72	.23	.22	2.17	2.38	.21
June–December, 1918	2,009,794	1.77	.28	.21	2.26	2.54	.28
Year 1917	3,234,124	1.39	.20	.19	1.78	2.19	.41
Year 1918	3,445,732	1.75	.26	.21	2.22	2.49	.27

In Table 157 are shown figures of the 10 operators for the calendar year 1916. Their average labor cost for the year was $1.13; total f. o. b. mine cost, $1.48; sales realization, $1.73; and margin, 25 cents per ton. During the period, January–March, 1917, the average labor cost for the 10 operators in Table 157 was $1.15 per ton (an increase of 2 cents over the averages for 1916), while their total f. o. b. mine cost was $1.46 (a decrease of 2 cents). Their production during January–March, 1917, averaged 196,634 tons per month—an increase over the monthly average for 1916 (146,566 tons). Their average sales realization during January–March, 1917, was $1.98 per ton (an increase of 25 cents over the average for 1916), and their margin was 52 cents (an increase of 27 cents).

The average labor cost during January–March, 1917, of the 12 operators in Table 158 was $1.18 per ton; total f. o. b. mine cost, $1.50; sales realization, $1.99; and margin, 49 cents per ton. During April–

August, 1917, their labor cost averaged $1.36 per month—an increase of 18 cents over January–March. There was a wage change effective June 1, 1917. Since the production during May was much higher than for April, or for any succeeding month up to October, the effect of the change in wage scale is obscured. From a comparison, however, of the April, 1917, labor cost ($1.25 per ton), when the production was 241,890 tons, with that of September, 1917 ($1.49 per ton), when the production was 237,272 tons, and of the May labor cost ($1.24 per ton), when the production was 273,882 tons, with that in October ($1.46 per ton), when the production was 296,917 tons, the increased cost due to the wage scale advance can be estimated to have ranged from 20 to 25 cents. The average sales realization of the 12 operators in Table 158 for April–August, 1917, was $2.12 per ton (an increase of 13 cents over that for January–March), and their margin was 36 cents (a decrease of 13 cents).

On August 21, 1917, the Government first fixed prices under the Lever Act. The prices fixed by Executive order for the sale of coal not then under contract in this State on August 21, 1917, were as follows: Run of mine, $2.70; prepared sizes, $2.95; slack, $2.45. The average proportions which these three classes of coal formed of the total output, based on actual returns for all operators in the State who reported to the Federal Trade Commission during the period August–December, 1917, were as follows: Run of mine, 37 per cent; prepared sizes, 50 per cent; slack, 13 per cent. Had the entire output of the 12 operators in Table 158 been sold at the prices established August 21, 1917, it would have brought them a sales realization of $2.79 per ton. They *actually* received an average sales realization of $2.32 per ton during September and $2.15 during October. The average total f. o. b. mine cost of the 12 operators during September–October, 1917, was $1.90 per ton (14 cents higher than that for April–August, 1917). Their average monthly output during September–October, 1917, was 267,091 tons—an increase over that of April–August (243,235 tons). Their average sales realization for September–October ($2.23) was 11 cents higher than that for April–August, and their margin 33 cents per ton (3 cents lower).

The distribution of the total f. o. b. mine costs for 19 operators who mined 867,969 tons in Montana during the three months of August–October, 1917, is shown in the following table:

TABLE 159.—*Total f. o. b. mine costs of 19 operators in Montana during August–October, 1917.*

Total f. o. b. mine cost per ton by $0.10 groupings.	Number of operators.	Accumulated per cent of output.	Total f. o. b. mine cost per ton by $0.10 groupings.	Number of operators.	Accumulated per cent of output.
$1.20 to $1.29	1	0.6	$2.10 to $2.19	1	84.1
$1.30 to $1.39			$2.20 to $2.29	1	91.7
$1.40 to $1.49	1	2.7	$2.30 to $2.39		
$1.50 to $1.59			$2.40 to $2.49	1	93.2
$1.60 to $1.69	1	10.0	$2.50 to $2.59	1	99.2
$1.70 to $1.79	2	11.6	$2.60 and over	2	100.0
$1.80 to $1.89	2	41.5			
$1.90 to $1.99	3	67.2	Total	19	100.0
$2.00 to $2.09	3	79.3			

It appears, therefore, that had the operators sold their entire output at the prices fixed by the President on August 21, 1917, about 93 per cent of the output would have shown a margin of 25 cents or over per ton. The 19 operators *actually* received a sales realization during August–October, 1917, of $2.20 per ton, which left them an average margin of 23 cents per ton over their average f. o b. mine cost of $1.97 per ton.

Effective October 27, 1917, the Fuel Administration made a change in the existing maximum prices for the State. The new prices were as follows: Run of mine, $2.70; prepared sizes, $3.60; slack, $1.50. Applying to these prices the proportions (already stated), which these three classes of coal form of the total output, a sales realization of $2.99 per ton was possible had the entire output been sold at the maximum prices. Effective November 1, 1917, a 45-cent increase in the price of noncontracted coal was allowed by Executive order to take care of an increase in the wage scale which went into effect at that time. The labor cost for the period November, 1917–February, 1918, of the 12 operators shown in Table 158, increased 22 cents per ton—from $1.47 per ton in September–October, 1917, to $1.69 per ton in November, 1917–February, 1918. This increase is is attributable to the higher wage scale. The average monthly production was 304,009 tons for November, 1917–February, 1918, as compared with 267,091 tons for September–October, 1917. The average total f. o. b. mine cost of the 12 operators for the period November, 1917–February, 1918, was $2.13 per ton (an increase of 23 cents over September–October, 1917); the sales realization, $2.56 (an increase of 33 cents); and the margin, 43 cents per ton (an increase of 10 cents).

Effective March 1, 1918, the Fuel Administration made a change in the existing maximum prices for the district. The new prices, including the November 1, 1917, price increase because of the wage increase, were as follows: Run of mine, $3.10; prepared sizes, $3.75; slack, $1.95. Applying to these prices the proportions (already

stated), which these three classes of coal form of the total output, a sales realization of $3.28 per ton was possible had the entire output been sold at the maximum prices. The total f. o. b. mine cost of the 12 operators in Table 158 in March was $2.21 per ton—an increase of 8 cents over that of November, 1917–February, 1918. Their output in March was 267,368 tons—a decrease from the average for November, 1917–February, 1918, which was 304,009 tons. Their sales realization in March was $2.37 per ton (a decrease of 19 cents), and their margin was 16 cents per ton (a decrease of 27 cents).

The average total f. o. b. mine cost for the 12 operators during April, 1918, was $2.26 per ton—an increase of 5 cents over March, 1918. The production for April was 254,392 tons—a decrease from that of March. Their sales realization for April was $2.28 per ton (a decrease of 9 cents), and their margin was 2 cents (a decrease of 14 cents). Effective May 1, 1918, the Fuel Administration made a change in the existing maximum prices for the State. The new prices, including the November 1, 1917, price increase because of the wage increase, were as follows: Run of mine, $3.15; prepared sizes, $4.05; slack, $1.45. Applying to these prices the proportions (already stated) which these three classes of coal form of the total output, a sales realization of $3.38 per ton was possible had the entire output been sold at the maximum prices. The total f. o. b. mine cost of the 12 operators in Table 158 during May, 1918, was $2.17 per ton—a decrease of 9 cents from April. The production in May showed an increase, being 291,482 tons per month, as compared with 254,392 tons in April. The sales realization was $2.38 (an increase of 10 cents), and the margin 21 cents per ton (an increase of 19 cents).

Effective May 25, 1918, the Fuel Administration made a reduction of 10 cents per ton in the official maximum prices for the State. During the period June–December, 1918, there was no change in the official maximum prices for the State. The 12 operators in Table 158 had an average f. o. b. mine cost of $2.26 per ton—an increase of 9 cents over May. Their production during the last seven months (averaging 287,113 tons per month) was slightly lower than that of May. The average sales realization of the 12 operators for June–December, 1918, was $2.54 per ton (an increase of 16 cents), and their margin 28 cents per ton (an increase of 7 cents).

3. Relation of the cost subdivisions to the total f. o. b. mine costs.

The following table, based on revised costs, shows the distribution by specified periods between the items of labor, supplies and general expense of each dollar in the total f. o. b. mine cost:

TABLE 160.—*Distribution between labor, supplies, and general expense of each dollar of total f. o. b. mine cost, 1916–1918, by specified periods, and by calendar years for 10 operators producing about 2,250,000 tons annually in the State of Montana.*

Period.	Labor.	Supplies.	General expense.
	Cents.	*Cents.*	*Cents.*
Year 1916	76	10	14
January–March, 1917	79	9	12
April–August, 1917	76	12	12
September–October, 1917	77	10	13
November, 1917–February, 1918	80	9	11
March, 1918	80	8	12
April, 1918	78	11	11
May, 1918	80	9	11
June–December, 1918	79	11	10
Year 1916	76	10	14
Year 1917	78	10	12
Year 1918	78	11	11

The foregoing table shows that there were relatively slight variations from period to period in the proportion which the labor cost formed of the total f. o. b. mine cost throughout the period shown.

4. Relative increases in the various costs, 1916–1918.

In the following table are shown the relative increases in the various costs during 1917–18, based on the costs of the year 1916:

TABLE 161.—*Relative increases in the various average costs, specified periods in 1917–18, as compared with 1916, for 10 operators producing about 2,250,000 tons annually in the State of Montana.*

Period.	Labor.	Supplies.	General expense.	Total f. o. b. mine cost.
	Per cent.	*Per cent.*	*Per cent.*	*Per cent.*
Year 1916	[1] B	[1] B	[1] B	[1] B
January–March, 1917	2	[2] 7	[2] 15	[2] 1
April–August, 1917	20	40	10	21
September–October, 1917	31	27	30	30
November, 1917–February, 1918	48	20	20	41
March, 1918	55	20	30	48
April, 1918	56	67	25	53
May, 1918	51	27	20	45
June–December, 1918	54	67	15	50

[1] Base. [2] Decrease.

The most significant increase was in the labor cost, which was, in April, 1918, 56 per cent, and in June–December, 54 per cent above that in 1916. The rates of increase in the supplies cost, while much larger than those of the labor cost, had much less effect on the increase of the total f. o. b. mine cost, since, as shown in Table 160, the supplies cost in the State averaged from 8 to 12 per cent of the total f. o. b. mine cost, while the labor cost formed from 76 to 80 per cent.

5. Changes in the relation of costs to sales realizations.

The following table, based on the revised costs and sales realizations shown in Table 157 (see p. 264), shows the distribution for specified periods between the items of labor, supplies, general expense, and margin to operator of each dollar paid for coal to the operator by the purchaser:

TABLE 162.—*Distribution of the amount paid by the purchaser between the various principal costs and the margin, based on each dollar of sales realization, 1916–1918, by specified periods and by calendar years, for 10 operators producing about 2,250,000 tons annually in Montana.*

Period.	Labor.	Supplies.	General expense.	Total f. o. b. mine.	Margin.
	Cents.	*Cents.*	*Cents.*	*Cents.*	*Cents.*
Year 1916	65	9	12	86	14
January–March, 1917	58	7	9	74	26
April–August, 1917	62	10	10	82	18
September–October, 1917	64	8	11	83	17
November, 1917–February, 1918	64	7	9	80	20
March, 1918	74	8	11	93	7
April, 1918	78	11	11	100	00
May, 1918	71	8	10	89	11
June–December, 1918	68	9	9	86	14
Year 1916	65	9	12	86	14
Year 1917	61	8	10	79	21
Year 1918	69	9	9	87	13

These facts are shown in graphic form in Chart 34 (facing p. 264).

That part of the amount paid by the purchaser which went to labor varied from period to period. It was highest (78 cents out of the dollar) during April, 1918, and lowest (58 cents out of the dollar) during January–March, 1917.

The margin varied greatly from period to period. It was highest (26 cents out of the dollar) during January–March, 1917, while during April, 1918, the total f. o. b. mine cost equaled the sales realization.

It must not, however, be supposed that such margins were all clear profit to the operators. As has been pointed out, the commission's revised cost figures exclude any charges for interest, income, excess profits, taxes, donations, etc., which are expenditures that, while not entering into operating cost, must be met from the margin; nor is there any allowance in the total f. o. b. mine cost for the expense of selling the coal.

Of the 17 operators in Montana whose costs were obtained for 1918, 12 reported a selling expense on their coal and five did not report any. For those that did report the claimed selling expense varied from one-half of a cent to 8 cents per ton, the average being 4 cents per ton.

It is fair to assume that a very large part of the output of the operators who reported no selling expense (forming about one-

third of all operators reporting in the State) reached the consumer through the jobbers or sales agencies. Probably also a considerable fraction of the output of the remaining two-thirds of the operators went through such channels.

That part of the output sold through jobbers is sold f. o. b. at the mine, and there is little or no selling expense to be considered, since it is taken care of in the sales realization and would not come out of margin.

Considering the total investment as the amount necessary to operate the business, whether in the form of capital stock and surplus, bonds or other borrowed money, the return on the total investment in the business, after deducting the estimated average selling expense from the margin, and before deducting interest on borrowed money or Federal income and excess profits taxes, is shown in the statement following for the years 1916, 1917, and 1918, for the 10 operators who produced about 2,250,000 tons annually:

	1916	1917	1918
Margin between f. o. b. mine cost and sales realization	$0.25	$0.46	$0.33
Estimated selling expense	.04	.04	.04
Amount per ton earned on investment before deducting interest on borrowed money and Federal income and excess profits taxes	.21	.42	.29

CHAPTER XI.—WYOMING.

Part I. Introduction.

1. Definition of the district.

All operators in the State were considered as being in one district, and maximum prices for their output were fixed by the Fuel Administration on that basis.

The location of the coal fields is shown on the map of Wyoming (facing p. 274).

2. General statistics of output.

The statistics in this section have been compiled from reports published by the United States Geological Survey.

The proportion which the output of Wyoming has formed of the total bituminous coal output of the United States is as follows:

	Per cent.		Per cent.
1911	1.7	1915	1.5
1912	1.6	1916	1.6
1913	1.5	1917	1.6
1914	1.5	1918	1.6

The United States Geological Survey has collected information on the "average value per ton" for a long series of years. This average is obtained by dividing the total selling value by the total tonnage.[36] The following table shows this information for 1911–1918:

TABLE 163.—*Production and average value, 1911–1918, for the State of Wyoming.*

Year.	Production.	Average value per ton.	Year.	Production.	Average value per ton.
	Tons.			*Tons.*	
1911	6,744,864	$1.56	1915	6,554,028	$1.46
1912	7,368,124	1.58	1916	7,910,647	1.55
1913	7,393,066	1.56	1917	8,575,619	1.93
1914	6,475,293	1.55	1918	9,438,688	2.39

[36] "The value of coal given in this report is the realization value at the mine f. o. b. cars, and the average value per ton is the average realization price obtained by dividing the total value by the number of tons sold or produced. The coal used at the mine, the coal coked by the producing company, and the coal used in some other industry by the company operating the mine—an appreciable proportion of the whole—is never sold, and the value placed upon it is either an estimate or the figure at which it is carried on the books, either of which is supposedly based on what the coal would have brought if sold or what other fuel for the respective purpose would have cost if its purchase had been necessary. In other words, the values given represent returns to the operators for coal sold plus estimated exchange value of that not sold. These figures do not necessarily show prices or even an average of the prices of coal at the mine." U. S. Geological Survey. (Mineral Resources of the United States, 1917. Part II, p. 952.)

In its reports for 1916 and 1917 the United States Geological Survey published "average values" in more detail than in previous reports. The following table is compiled from statistics appearing in the 1916 and 1917 reports:

TABLE 164.—*Disposition of product and average values, for the State of Wyoming, 1916–17.*

	1916 production.	Average value per ton.	1917 production.	Average value per ton.
	Tons.		*Tons.*	
Loaded at mines for shipment	7,547,706	$1.57	8,179,694	$1.96
Sold to local trade and used by employees	96,055	1.59	125,484	2.28
Used at mines for steam and heat	266,886	.80	270,441	1.01
Total	7,910,647	1.55	8,575,619	1.93

3. Character of the consumption of Wyoming coal.

As is the case in many of the coal fields west of the Middle Atlantic States, a considerable portion of the output of bituminous coal in Wyoming goes into domestic consumption. The proportion thus used is influenced partly by the nature of the coal, partly by the availability of substitutes, and partly by the extent of preparation given the coal for the purpose of adapting it to domestic use.

The exact extent to which the coal from this State enters into domestic use is not definitely ascertainable from any figures at present available. In the 1915 report of the United States Geological Survey [37] some statistics of the distribution of bituminous coal by classes of consumers, for Wyoming, are shown. From these the percentages of consumption shown in the following statement have been compiled:

	Per cent.
Railroad	64.4
Domestic and small steam trade	26.3
Industrial steam trade	5.4
Mine fuels	3.9
Total output (tons)	6,554,028

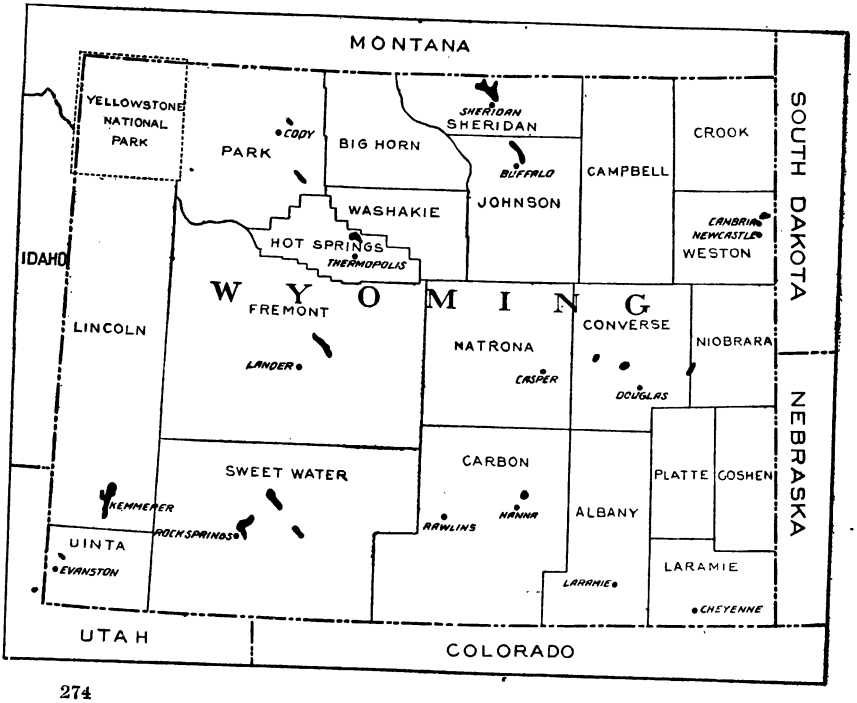
The following statistics of distribution of shipments of bituminous coal, by classes of consignees, August 3, 1918, to February 1, 1919, are taken from an unpublished manuscript of the Geological Survey and are published by permission of that bureau:

[37] Mineral Resources of the United States, 1915. Part II, pp. 471–472.

WYOMING

BITUMINOUS AND SUBBITUMINOUS COAL FIELDS

Bituminous Subbituminous



Class of consumer.	Northern Wyoming and Montana.	Southern Wyoming and Utah.
	Per cent.	*Per cent.*
Railroad fuel	53.3	48.5
United States Government	.6	.2
State and county institutions	.6	.3
Public utilities, gas and electric	1.9	1.6
Retail dealers	31.0	27.7
Industries, including iron and steel	12.6	21.7
	100.0	100.0

This use of coal for domestic consumption introduces to a greater or less extent changes in the character of the seasonal demand. In Report No. 2, on Pennsylvania anthracite, the commission pointed out the wide differences between the character of the demand for coal for domestic consumption and the demand for industrial use. If the coal is of a nature which can be stored without undue fire risk, and if the domestic consumer can be induced to buy his coal during the summer the domestic demand has a less seasonal character than where such conditions do not exist. Despite the marked seasonal fluctuations the annual domestic demand is likely to be a fairly constant quantity from year to year. On the other hand, the industrial demand for coal, while not always subject to such extreme seasonal fluctuations as that of coal for domestic use, is likely to vary to a much greater extent from year to year, influenced as it is primarily by periods of industrial prosperity or depression.

Part II. 1918 costs and sales realizations.

1. Number and extent of operations covered.

The 1918 production of the 20 operators in Wyoming from whom cost reports were obtained by the commission was as follows:

	Tons.	Per cent.
18 operators from whom costs were obtained for 12 months	8,949,535	97.3
2 operators from whom costs were obtained for less than the full 12 months (actual tonnage reported, 97,411 tons), estimated yearly tonnage	246,840	2.7
Total	9,196,375	100.0

The above figures are shown, *inclusive* of power-house fuel, for comparison with the United States Geological Survey statistics. The total output of the 18 operators from whom costs were obtained for 12 months was, *exclusive* of power-house fuel, 8,714,679 tons.

According to the statistics issued by the Geological Survey the output of Wyoming during 1918 was 9,438,688 tons, of which 252,659

tons were used at the mine for steam and heat. The commission obtained cost information on 9,046,946 tons produced in 1918 (including power-house fuel), forming 96 per cent of the total as reported by the Survey. It publishes in this report cost information on 8,714,679 tons of commercial production, which is 95 per cent of the output reported by the Survey, after exclusion of the mine fuel.

2. Classification of producers by number of mines operated.

The costs of the 18 operators shown in the tabulation for Wyoming cover the output of 25 mines. The following table shows the number of mines operated by the different producers:

TABLE 165.—*Number of mines operated by different producers in Wyoming.*

Number of mines run by each operator.	Number of operators.	Proportion of total number.	Production tonnage, 1918.	Proportion of total production.
		Per cent.	*Tons.*	*Per cent.*
1 mine	14	77.7	3,721,075	42.7
2 mines	2	11.1	3,597,970	41.3
3 mines	1	5.6	579,522	6.6
4 mines	1	5.6	816,112	9.4
Total (number of mines, 25)	18	100.0	8,714,679	100.0

It will be seen that in the State 14 producers (about 78 per cent of the total number shown in the table) operated only one mine each, and produced about 43 per cent of the output.

The average number of mines operated by a producer was 1.4. The average annual production per mine was 348,587 tons for the State, 265,791 tons for the 14 one-mine operators, and 453,964 tons for the four operators of two or more mines.

The number and size of mines in Wyoming are shown in further detail in the report for 1917 of the United States Geological Survey, from which the following statistics are derived:[38]

Annual output of mines.	Mines.		Tonnage.	
	Number.	Proportion of total in State.	Average production per mine.	Proportion of total State output.
		Per cent.	*Tons.*	*Per cent.*
200,000 tons and over	23	31.1	283,532	76.0
100,000 to 199,999 tons	9	12.2	163,728	17.2
50,000 to 99,999 tons	6	8.1	70,230	4.9
10,000 to 49,999 tons	6	8.1	20,734	1.5
Under 10,000 tons	30	40.5	1,168	.4
State	74	100.0	115,887	100.0

[38] Mineral Resources of the United States, 1917. Part II, pp. 947–948.

3. Classification of producers by size of output.

The 18 producers tabulated for Wyoming are classified by size of their output in 1918, exclusive of power-house fuel, as follows:

TABLE 166.—*Classification of 18 Wyoming operators by size of output.*

Production during 1918.	Number of operators.	Proportion of total number.	Tonnage produced, 1918.	Proportion of total production.
		Per cent.	*Tons.*	*Per cent.*
100,000 to 499,999 tons	15	83.3	4,023,117	46.2
500,000 tons and over	3	16.7	4,691,562	53.8
Total	18	100.0	8,714,679	100.0

4. The 1918 costs and sales realizations.

There was no change in the official wage scale for bituminous coal miners in Wyoming during 1918. Therefore the labor costs per ton for the period were principally affected by changes in the production tonnage and not by changes in the rate of wages paid labor. The effect of decreased production in increasing labor costs can be clearly seen on Diagram XIV (opposite p. 278) and Charts 35 and 36 (opposite p. 280).

Tables 79 to 83 in the appendix to this report (see pp. 436–440) show the costs and the sales realizations arranged from low to high in 10-cent groupings for each period shown. Throughout the tables the costs are shown for the same operators, but the costs of any given operator do not necessarily hold the same relative position in the 10-cent groups at each period. The shift of any operator in his relative position from period to period is generally slight.

The tables show, for each quarter and for the year as a whole, by 10-cent groupings, the tonnage produced at that cost, its per cent of the total production, the place of the group in the accumulated percentage, and the number of operators whose costs fell within each 10-cent group.

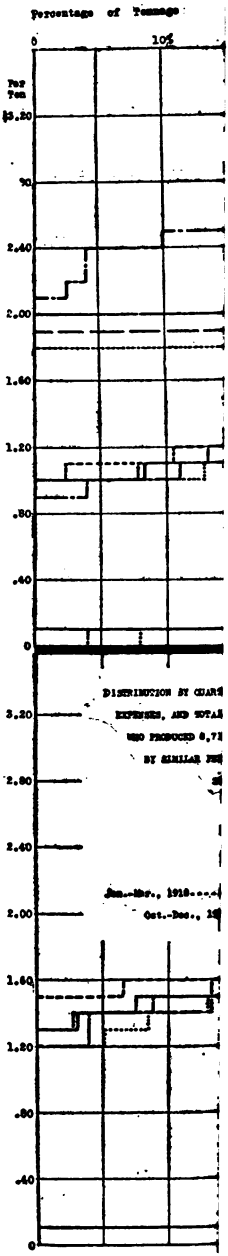
A summary of the significant facts brought out in Appendix Tables 79 to 83 appears in the following table, in which are compared the true average cost and sales realization, the range of 90 per cent of the output which had the lowest costs and sales realizations, and the extreme range for the entire output of the 18 operators.

TABLE 167.—*1918 quarterly and yearly revised costs and sales realization for 18 operators in the State of Wyoming, showing averages and range for 90 per cent and for 100 per cent of total output.*

Period.	Costs per net ton.												Sales realization per net ton.		
	Labor.			Supplies.			General expense.			Total f. o. b. mine.					
	Average.	Range. 90 per cent output.	Range. 100 per cent output.	Average.	Range. 90 per cent output.	Range. 100 per cent output.	Average.	Range. 90 per cent output.	Range. 100 per cent output.	Average.	Range. 90 per cent output.	Range. 100 per cent output.	Average.	Range. 90 per cent output.	Range. 100 per cent output.
January-March	$1.33	$1.01-$1.55	$1.01-$1.89	$0.20	$0.05-$0.41	$0.05-$0.42	$0.21	$0.11-$0.33	$0.11-$0.43	$1.74	$1.28-$2.22	$1.28-$2.41	$2.31	$1.83-$2.98	$1.83-$3.24
April-June	1.41	1.07- 1.64	1.07- 1.95	.24	.10- .40	.10- .47	.23	.12- .40	.12- .55	1.88	1.53- 2.27	1.53- 2.56	2.21	1.91- 2.76	1.91- 3.29
July-September	1.42	1.02- 1.67	1.02- 2.00	.24	.13- .41	.13- .50	.22	.13- .37	.13- .42	1.88	1.37- 2.16	1.37- 2.66	2.43	1.90- 2.96	1.90- 3.28
October-December	1.43	.98- 1.64	.98- 2.08	.29	.06- .49	.06- .68	.23	.15- .38	.15- .44	1.95	1.22- 2.50	1.22- 2.76	2.63	2.16- 2.90	2.16- 3.21
Year	1.40	1.02- 1.60	1.02- 1.98	.24	.12- .37	.12- .48	.22	.13- .36	.13- .43	1.86	1.36- 2.25	1.36- 2.59	2.41	2.04- 2.87	2.04- 3.20

BITU

DIAGRAM XIV



The proportion of the total output of Wyoming mined by machines is stated by the United States Geological Survey to have been 41.9 per cent in 1917.

5. Relation of the costs to the sales realizations.

The following table shows the distribution, by quarters and for the year 1918, between the items of labor, supplies, general expense, and margin of each dollar of sales realization received by the operator:

TABLE 168.—*Distribution of the amount paid by the purchaser between the various principal costs and the margin, based on each dollar of sales realization, for the State of Wyoming, 1918, by quarters and for the year.*

Period.	Costs.				Margin.
	Labor.	Supplies.	General expense.	Total f. o. b. mine.	
State:	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*
January-March	57	9	9	75	25
April-June	64	11	10	85	15
July-September	58	10	9	77	23
October-December	54	11	9	74	26
Year	58	10	9	77	23

These facts are shown in graphic form in Chart 37 (facing p. 280).

6. Comparison of claimed and revised costs.

The foregoing tables present costs which have in some cases been revised by the accountants of the commission from the claimed figures reported on the original schedules by the operators. Table 84 in the appendix to this report shows the claimed 1918 costs, compiled in all cases directly from the figures submitted by the operators.

The changes brought about through the revision in the average costs for the year 1918 for the 18 operators were as follows:

Item.	Claimed costs.	Revised costs.	Increase (I) or decrease (D) due to revision.
Production (tons)	8,949,535	8,714,679	[1] 234,856 (D)
Labor ... per ton	$1.36	$1.40	$0.04 (I)
Supplies ... do	.29	.24	.05 (D)
General Expense ... do	.24	.22	.02 (D)
Total f. o. b. mine ... do	1.89	1.86	.03 (D)

[1] Due to exclusion of power-house fuel.

The increase of 4 cents in the average State revised labor cost over the claimed is caused by the use of the revised production tonnage as

a divisor. The total claimed labor cost was $12,175,772 and the total revised labor cost was $12,176,873. Revisions were also made in the items of supplies and general expense resulting in a decrease of 5 and 2 cents, respectively.

The costs claimed by some of the operators were obviously open to question as to their accuracy. Such operators were required by the commission to furnish detailed information in support of their claimed costs. The examination of such detailed information revealed the fact that they had sometimes included in their general expense costs such items as contingent and maintenance reserves, etc. In some cases the costs had been inflated principally through the inclusion of officers' salaries which were far in excess of those paid in neighboring operations of similar size, and by excessive charges for the items of depreciation and depletion which had not been computed in accordance with the rules prescribed in the instructions of the commission.

7. 1918 costs shown by thickness of seam mined.

About 57 per cent of the output of Wyoming came from four producers who operated more than one mine. Most of these producers did not report the costs of each mine separately. In order to include them in a tabulation to show costs by thickness of seam, it was necessary to use the average of the seams mined by them. This has led to the inclusion of data in the tabulation for the 18 operators which, to a slight extent, vitiates its scientific value, since it is not known whether equal tonnage was derived from mines which had seams above or below the average thickness. The tabulation by thickness of seam for the 18 operators follows:

TABLE 169.—*Seam tabulation of revised costs for 18 operators in Wyoming.*

Thickness of seam.	Number of operators.	Production, 1918.	Costs per ton.			
			Labor.	Supplies.	General expense.	Total f. o. b. mine.
		Tons.				
60 to 71 inches[1]	4	1,459,411	$1.50	$0.29	$0.33	$2.12
84 to 95 inches	3	782,172	1.56	.33	.29	2.18
96 to 107 inches	3	1,185,375	1.60	.32	.26	2.18
108 to 119 inches	2	354,194	1.44	.17	.33	1.94
144 to 431 inches	6	4,933,527	1.29	.20	.16	1.65
Total	18	8,714,679	1.40	.24	.22	1.86

[1] Includes 1 operator with 54-inch seam.

In order to eliminate the effect of the inclusion of average thicknesses where producers operated two or more mines, a seam tabulation has been made of the 14 one-mine operators. It will be noted

BITUMINOUS AND SUBBITUMINOUS COAL – WYOMING

CHART 35. – Production tonnage, by quarters for 1918, of 18 Operators in Wyoming.

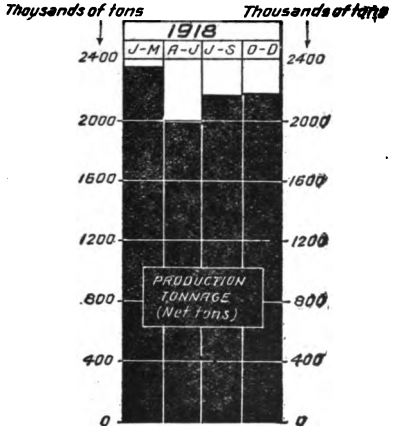


CHART 37. – Distribution of Amount paid by purchaser between the various principal Costs and the Margin, based on each dollar of Sales Realization, by quarters in 1918, in Wyoming.

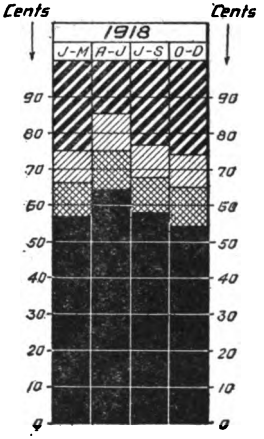
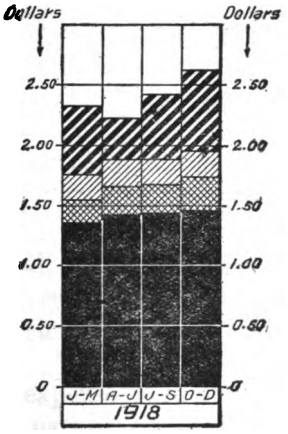


CHART 36. – Average Costs and Sales Realizations per ton, by quarters for 1918, of 18 Operators in Wyoming.



Labor
Supplies
Gen'l Expenses
Margin

from the following table that the tonnage of the 14 one-mine operators was somewhat more regularly distributed among the different thicknesses of seam than was the case with the 18 operators:

TABLE 170.—*Distribution, between seams, of output of 18 operators and 14 one-mine operators in Wyoming.*

Thickness of seam.	18 operators, producing 8,714,679 tons in 1918.		14 operators, producing 3,721,075 tons in 1918.	
	Number of operators.	Per cent of output.	Number of operators.	Per cent of output.
48 to 59 inches	1	3.8	1	8.8
60 to 71 inches	3	13.0	2	8.5
72 to 83 inches	.....	.....	.....	.....
84 to 95 inches	3	9.0	3	21.0
96 to 107 inches	3	13.6	1	8.2
108 to 119 inches	2	4.0	2	9.5
120 to 131 inches	.....	.....	.....	.....
132 to 143 inches	.....	.....	.....	.....
144 to 431 inches	6	56.6	5	44.0
Total	18	100.0	14	100.0

The tabulation of cost, by thickness of seam, for the 14 one-mine operators follows:

TABLE 171.—*Seam tabulation of revised costs for the 14 one-mine operators in Wyoming.*

Thickness of seam.	Number of operators.	Production, 1918.	Costs per ton.			
			Labor.	Supplies.	General expense.	Total f. o. b. mine.
		Tons.				
60 to 71 inches [1]	3	643,299	$1.62	$0.20	$0.34	$2.16
84 to 95 inches	3	782,172	1.56	.33	.29	2.18
96 to 107 inches	.....	.....	.....	.....	.....	.....
108 to 119 inches [2]	3	658,005	1.55	.27	.33	2.15
144 to 431 inches	5	1,637,599	1.10	.18	.22	1.50
Total	14	3,721,075	1.37	.23	.27	1.87

[1] Includes 1 operator with 54-inch seam. [2] Includes 1 operator with 96-inch seam.

In general, there was a decrease in the average labor cost per ton with the increase in the thickness of seam. There is no close correlation shown between the various supplies costs and thickness of seam.

General expense is less affected than labor cost by conditions of a physical nature, like thickness of seam, but is closely connected with the commercial and financial economies of operation. The following comparison of the 14 one-mine operators with the four operators of two or more mines is of interest:

TABLE 172.—*Comparison of average revised costs: Operators of one mine with operators of two or more mines in Wyoming.*

	Number of operators.	Number of mines.	Output, 1918.			Costs per ton.			
			Total output.	Output per operator.	Output per mine.	Labor.	Supplies.	General expense.	Total f. o. b. mine.
State:			*Tons.*	*Tons.*	*Tons.*				
1 mine	14	14	3,721,075	265,791	265,791	$1.37	$0.23	$0.27	$1.87
2 or more mines	4	11	4,993,604	1,248,401	453,964	1.42	.25	.18	1.85
Total	18	25	8,714,679	484,149	348,587	1.40	.24	.22	1.86

It will be noted that the general expense cost was lower for operators of two or more mines than that for one-mine operators.

Part III. Comparative costs and sales realizations, August, 1917–December, 1918.

1. Representativeness of statistics presented.

Representative figures were not obtained by the commission for costs and sales realizations prior to August, 1917, in Wyoming. Use has therefore been made of the monthly reports covering the last five months of 1917. Nearly everyone of the operators that appears in the 1917 appears also in the 1918 figures, but there are a few unimportant exceptions which do not affect the general comparability of the 1917 figures with those of 1918. The average total f. o. b. mine costs, sales realizations, and margins of about 95 per cent of the entire output mined in the State are presented.

2. The revised costs, sales realizations and production figures, and analyses of the fluctuations, August, 1917–December, 1918.

The significance of the eight periods selected for presenting the figures for August, 1917–December, 1918, for the State of Wyoming is as follows:

August, 1917.—The greater part of this month was prior to the fixing, by Executive order of August 21, 1917, of maximum prices for bituminous coal not sold under contracts made prior to that date, and the establishment of a Fuel Adminitsration to regulate the fuel situation.

September, 1917.—This period directly followed the fixing, by Executive order of August 21, 1917, of maximum prices for bituminous coal not sold under contracts made prior to that date and the establishment of a Fuel Administration to regulate the fuel situation. The 1917 wage scale continued in operation during this month.

October, 1917.—This period followed the change in maximum prices, effective October 1, 1917, made by the Fuel Administration in the maximum prices established for this State.

November–December, 1917.—This period directly followed the increase in maximum prices allowed by Executive order in consequence of the adoption of a new wage scale (1917–18) which was higher than that adopted earlier in 1917.

January–February, 1918.—During this period the prices fixed November 1, 1917, continued. The number of operators in the State from whom 1918 figures were obtained was less than that from whom August–December, 1917, figures were available.

March, 1918.—Effective March 11, 1918, the Fuel Administration established new maximum prices for this State.

April–May, 1918.—Beginning with this period, practically the entire output of coal, whether sold under contract or not, was subject to the governmental maximum prices. The 1917–18 wage scale continued in operation.

June–December, 1918.—This period followed the reduction made by the Fuel Administration of 10 cents per ton, effective May 25, 1918, in the maximum prices for the State. Throughout this period the official maximum prices remained unchanged, and the 1917–18 wage scale continued in effect.

TABLE 173.—*Revised costs and sales realizations of operators in the State of Wyoming, August, 1917–December, 1918.*

Period.	Number of operators.	Production.	Total f. o. b. mine cost per ton.	Sales realization per ton.	Margin per ton.
		Tons.			
August, 1917	19	617,227	$1.55	$2.00	$0.45
September, 1917	19	584,627	1.55	1.93	.38
October, 1917	19	694,602	1.52	2.06	.54
November–December, 1917	19	1,690,243	1.69	2.46	.77
January–February, 1918	18	1,740,204	1.69	2.38	.69
March, 1918	18	626,818	1.88	2.13	.25
April–May, 1918	18	1,306,893	1.86	2.23	.37
June–December, 1918	18	5,040,764	1.91	2.50	.59

On August 21, 1917, the Government first fixed prices under the Lever Act. The prices fixed by Executive order for the sale of coal not then under contract in the State on August 21, 1917, were as follows: Run of mine, $2.50; prepared sizes, $2.75; slack, $2.25. The average proportions which these three classes of coal formed of the total output, based on actual returns for all operators in the State who reported to the Federal Trade Commission during the period, August–December, 1917, were as follows: Run of mine, 62 per cent; prepared sizes, 30 per cent; slack, 8 per cent. Had the entire output of the 19 operators been sold at the prices established August 21, 1917, it would have brought them a sales realization of $2.56 per ton. The 19 operators actually received during September, 1917, a sales realization of $1.93 per ton, which was 7 cents less than they received during August ($2 per ton). The average total f. o. b.

mine cost of the 19 operators was, for September, 1917, $1.55 per ton (the same as August), while their tonnage was 584,627 tons (a decrease from that in August—617,227 tons). Their margin during September was 38 cents per ton—a decrease of 7 cents from August.

Effective October 1, 1917, the Fuel Administration made a change in the existing maximum prices for the State. The new prices were as follows: Run of mine, $2.50; prepared sizes, $3.50; slack, $1.25. Applying to these prices the proportions (already stated), which these three classes of coal formed of the total output, a sales realization of $2.70 per ton was possible had the entire output been sold at the maximum prices. The total f. o. b. mine cost of the 19 operators in October was $1.52 per ton—a decrease of 3 cents from that of September. Their output in October was 694,602 tons—an increase over September, which was 584,627 tons. The sales realization in October was $2.06 per ton—an increase of 13 cents over September. The margin during October was 54 cents per ton—an increase of 16 cents over September.

Effective November 1, 1917, a 45-cent increase in the established maximum prices was allowed by Executive order, to take care of an increase in the wage scale which went into effect at that time. The average f. o. b. mine cost of the 19 operators for November–December, 1917 ($1.69 per ton), increased 17 cents over that for October, 1917, this increase being principally attributable to the higher wage scale. The output increased to an average of 845,122 tons per month. Their average sales realization for November–December, 1917, was $2.46 per ton (an increase of 40 cents), and their margin 77 cents per ton (an increase of 23 cents).

During January–February, 1918, the average total f. o. b. mine cost of the 18 operators who reported for the 12 months in 1918 was $1.69 per ton; their sales realization, $2.38; and their margin, 69 cents per ton.

Effective March 11, 1918, the Fuel Administration made a change in the existing maximum prices for the State. The new prices, including the November 1, 1917, price increase because of the wage increase, were as follows: Run of mine, $3.10; prepared sizes, $3.75; slack, $1.95. Applying to these prices the proportions (already stated), which these three classes of coal formed of the total output, a sales realization of $3.20 per ton was possible had the entire output been sold at the maximum prices. Effective March 23, 1918, maximum prices were established for egg and nut sizes of subbituminous coal mined in the State. This order affected the output of 11 operators of the 18 operators shown in Table 173 for 1918. These 11 operators mined about 70 per cent of the output reported for 1918. The total f. o. b. mine cost of the 18 operators during March, 1918, was $1.88 per ton—an increase of 19 cents over the average for January–

February. Their output during March, 1918, was 626,818 tons—a decrease from the average for January–February (870,102 tons). The sales realization in March was $2.13 per ton (a decrease of 25 cents from January–February), and the margin was 25 cents per ton (a decrease of 44 cents). The total f. o. b. mine cost of the 18 operators during April–May, 1918, was $1.86 per ton—a decrease of 2 cents from March. The production in April–May showed an increase, averaging 653,447 tons per month, as compared with 626,818 tons in March. Their sales realization was $2.23 (an increase of 10 cents), and their margin was 37 cents per ton (an increase of 12 cents).

Effective May 25, 1918, the Fuel Administration made a reduction of 10 cents per ton in the official maximum prices for the State. During the period, June–December, 1918, there was no change in the official maximum prices for this State. The 18 operators had an average f. o. b. mine cost of $1.91 per ton—an increase of 5 cents per ton over April–May. Their production the last seven months was higher than that of April–May—averaging 720,109 tons per month. Their average sales realization for June–December, 1918, was $2.50 per ton (an increase of 27 cents over April–May), and their margin was 59 cents per ton (an increase of 22 cents).

CHAPTER XII.—UTAH.

Part I. Introduction.

1. Definition of the district.

All operators in the State were considered as being in one district, and maximum prices for their output were fixed by the Fuel Administration on that basis.

The location of the coal fields is shown on the map of Utah (facing p. 288).

2. General statistics of output.

The statistics in this section have been compiled from reports published by the United States Geological Survey.

The proportion which the output of Utah has formed of the total bituminous coal output of the United States is as follows:

	Per cent.		Per cent.
1911	0.6	1915	0.7
1912	.7	1916	.7
1913	.7	1917	.7
1914	.7	1918	.9

The United States Geological Survey has collected information on the "average value per ton" for a long series of years. This average is obtained by dividing the total selling value by the total tonnage.[39] The following table shows this information for 1911–1918:

TABLE 174.—*Production and average value, 1911–1918, for the State of Utah.*

Year.	Production.	Average value per ton.	Year.	Production.	Average value per ton.
	Tons.			*Tons.*	
1911	2,513,175	$1.69	1915	3,108,715	$1.58
1912	3,016,149	1.67	1916	3,567,428	1.62
1913	3,254,828	1.65	1917	4,125,230	2.07
1914	3,103,036	1.59	1918	5,136,825	2.71

In its reports for 1916 and 1917 the United States Geological Survey published "average values" in more detail than in previous reports. The table following is compiled from statistics appearing in the 1916 and 1917 reports.

[39] "The value of coal given in this report is the realization value at the mine f. o. b. cars, and the average value per ton is the average realization price obtained by dividing the total value by the number of tons sold or produced. The coal used at the mine, the coal coked by the producing company, and the coal used in some other industry by the company operating the mine—an appreciable proportion of the whole—is never sold, and the value placed upon it is either an estimate or the figure at which it is carried on the books, either of which is supposedly based on what the coal would have brought if sold or what other fuel for the respective purpose would have cost if its purchase had been necessary. In other words, the values given represent returns to the operators for coal sold, plus estimated exchange value of that not sold. These figures do not necessarily show prices or even an average of the prices of coal at the mine." U. S. Geological Survey. (Mineral Resources of the United States, 1917. Part II, p. 952.)

TABLE 175.—*Disposition of product and average values for the State of Utah, 1916–1917.*

	1916 production.	Average value per ton.	1917 production.	Average value per ton.
	Tons.		*Tons.*	
Loaded at mines for shipment	[1] 3,423,733	$1.65	[2] 3,962,074	$2.10
Sold to local trade and used by employees	65,260	1.65	77,028	1.95
Used at mines for steam and heat	78,435	.48	86,128	.88
Total	3,567,428	1.62	4,125,230	2.07

[1] Includes 736,853 tons made into coke at mines. [2] Includes 669,316 tons made into coke at mines.

3. Character of the consumption of Utah coal.

As is the case in many of the coal fields west of the Middle Atlantic States, a considerable portion of the output of bituminous coal in Utah goes into domestic consumption. The proportion thus used is influenced partly by the nature of the coal, partly by the availability of substitutes, and partly by the extent of preparation given the coal for the purpose of adapting it to domestic use.

The exact extent to which the coal from this State enters into domestic use is not definitely ascertainable from any figures at present available. In the 1915 report of the United States Geological Survey[40] some statistics of the distribution of bituminous coal by classes of consumers, for Utah, are shown. From these the percentages of consumption shown in the following statement have been compiled:

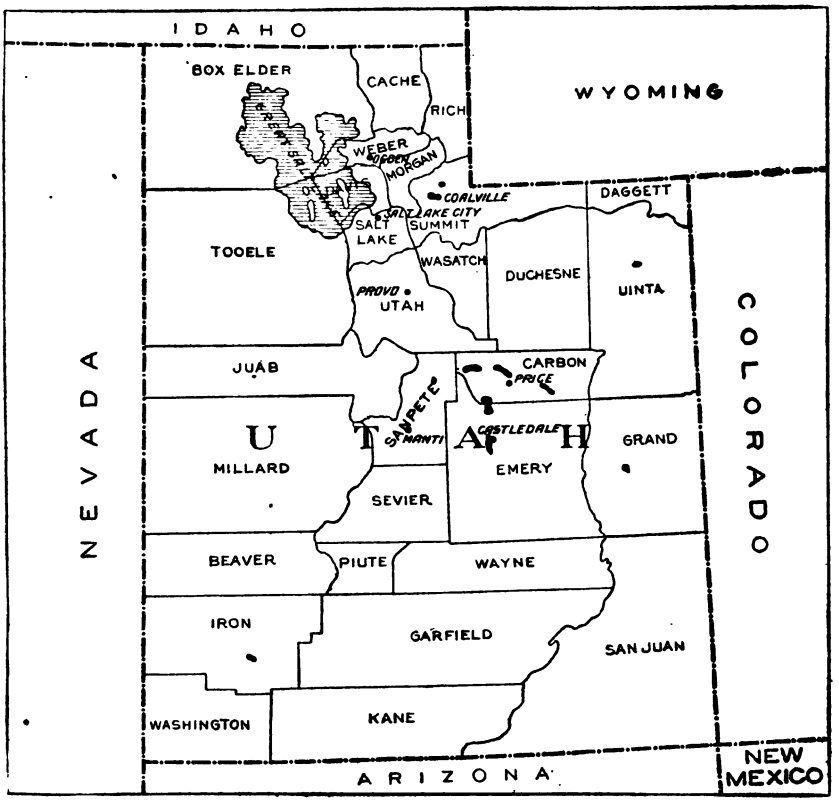
	Per cent.
Railroad	18.2
Coke	21.0
Gas	1.6
Domestic and small steam trade	36.3
Industrial steam trade	19.5
Mine fuels	3.4
Total output, tons	3,108,715

The following statistics of distribution of shipments of bituminous coal, southern Wyoming and Utah, by classes of consignees, August 3, 1918, to February 1, 1919, are taken from an unpublished manuscript of the Geological Survey and are published by permission of that bureau:

	Per cent.
Railroad fuel	48.5
United States Government	.2
State and county institutions	.3
Public utilities, gas and electric	1.6
Retail dealers	27.7
Industries, including iron and steel	21.7
	100.0

[40] Mineral Resources of the United States, 1915. Part II, pp. 471–472.

UTAH
BITUMINOUS COAL FIELDS



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This use of coal for domestic consumption introduces to a greater or less extent changes in the character of the seasonal demand. In Report No. 2, on Pennsylvania anthracite, the commission pointed out the wide differences between the character of the demand for coal for domestic consumption and the demand for industrial use. If the coal is of a nature which can be stored without undue fire risk, and if the domestic consumer can be induced to buy his coal during the summer, the domestic demand has a less seasonal character than where such conditions do not exist. Despite the marked seasonal fluctuations the annual domestic demand is likely to be a fairly constant quantity from year to year. On the other hand, the industrial demand for coal, while not always subject to such extreme seasonal fluctuations as that of coal for domestic use, is likely to vary to a much greater extent from year to year, influenced as it is primarily by periods of industrial prosperity or depression.

Part II. 1918 costs and sales realizations.

1. Number and extent of operations covered.

The 1918 production of the 14 operators in Utah from whom cost reports were obtained by the commission was as follows:

	Tons.	Per cent.
11 operators from whom costs were obtained for 12 months	4,892,305	94.1
3 operators from whom costs were obtained for less than the full 12 months (actual tonnage reported, 174,240 tons) estimated yearly tonnage	308,496	5.9
Total	5,200,801	100.0

The above figures are shown, *inclusive* of power-house fuel, for comparison with the United States Geological Survey statistics. The total output of the 11 operators from whom costs were obtained for 12 months was, *exclusive* of power-house fuel, 4,801,681 tons.

According to statistics issued by the Geological Survey, the output of Utah during 1918 was 5,136,825 tons, of which 94,978 tons were used at the mine for steam and heat. The commission obtained cost information on 5,066,545 tons produced in 1918 (including power-house fuel), forming 99 per cent of the total as reported by the Survey. It publishes in this report cost information on 4,801,681 tons of commercial production, which is 95 per cent of the output reported by the Survey, after the exclusion of mine fuel.

2. Classification of producers by number of mines operated.

The costs of the 11 operators shown in the tabulation for Utah cover the output of 20 mines. The following table shows the number of mines operated by the different producers:

TABLE 176.—*Number of mines operated by different producers in Utah.*

Number of mines run by each operator.	Number of operators.	Proportion of total number.	Production tonnage 1918.	Proportion of total production.
		Per cent.	*Tons.*	*Per cent.*
1 mine	7	63.6	1,319,920	27.5
2 mines	2	18.2	261,070	5.4
4 mines	1	9.1	1,272,082	26.5
5 mines	1	9.1	1,948,609	40.6
Total (number of mines, 20)	11	100.0	4,801,681	100.0

It will be seen that in the State seven producers (about 64 per cent of the total number shown in the table) operated only one mine each and produced about 28 per cent of the output. The average number of mines operated by a producer was 1.8. The average annual production per mine was 240,084 tons for the State, 188,560 tons for the seven one-mine operators, and 267,828 tons for the four operators of two or more mines.

The number and size of mines in Utah are shown in further detail in the report for 1917 of the United States Geological Survey from which the following statistics are derived:[41]

Annual output of mines.	Mines.		Tonnage.	
	Number.	Proportion of total in State.	Average production per mine.	Proportion of total State output.
		Per cent.	*Tons.*	*Per cent.*
200,000 tons and over	10	27.8	354,481	85.9
100,000 to 199,999 tons	3	8.3	134,221	9.8
50,000 to 99,999 tons	1	2.8	60,579	1.5
10,000 to 49,999 tons	3	8.3	29,742	2.1
Under 10,000 tons	19	52.8	1,471	.7
State	36	100.0	114,590	100.0

3. Classification of producers by size of output.

The 11 producers tabulated for Utah are classified by size of their output in 1918, exclusive of power-house fuel, as follows:

[41] Mineral Resources of the United States, 1917. Part II, pp. 947–948.

TABLE 177.—*Classification of 11 Utah operators by size of output.*

Production during 1918.	Number of operators.	Proportion of total number.	Tonnage produced, 1918.	Proportion of total production.
		Per cent.	*Tons.*	*Per cent.*
Under 50,000 tons	2	18.2	53,232	1.1
50,000 to 99,999 tons				
100,000 to 499,999 tons	7	63.6	1,527,758	31.8
500,000 to 999,999 tons				
1,000,000 tons and over	2	18.2	3,220,691	67.1
Total	11	100.0	4,801,681	100.0

If the three operators from whom costs were received for less than 12 months be considered, it would be found that two of them had an estimated annual production of over 100,000 tons and the other about 85,000 tons. Had returns for the full 12 months been available from them, it would be found that about 86 per cent of the operators produced about 37 per cent of the tonnage.

4. The 1918 costs and sales realizations.

There was no change in the official wage scale for bituminous coal miners in Utah during 1918. Therefore, the labor costs per ton for the period were principally affected by changes in the production tonnage and not by changes in the rate of wages paid labor. The effect of decreased production in increasing labor costs can be clearly seen on Diagram XV (opposite p. 294) and Charts 38 and 39 (opposite p. 292).

Tables 85 to 89 in the appendix to this report (see pp. 442–446) show the costs and the sales realizations arranged from low to high in 10-cent groupings for each period shown. Throughout the tables the costs are shown for the same operators, but the costs of any given operator do not necessarily hold the same relative position in the 10-cent groups at each period. The shift of any operator in his relative position, from period to period, is generally slight.

The tables show, for each quarter and for the year as a whole, by 10-cent groupings, the tonnage produced at that cost, its per cent of the total production, the place of the group in the acccumulated percentage, and the number of operators whose costs fell within each 10-cent group.

A summary of the significant facts brought out in Appendix Tables 85 to 89 appears in the following table, in which are compared the true average cost and sales realization, the range of 90 per cent of the output which had the lowest costs and sales realizations, and the extreme range for the entire output of the 11 operators:

TABLE 178.—*1918 quarterly and yearly revised costs and sales realization for 11 operators in the State of Utah, showing averages and range for 90 per cent and for 100 per cent of total output.*

Period.	Costs per net ton.												Sales realization per net ton.		
	Labor.			Supplies.			General expense.			Total f. o. b. mine.					
	Average.	Range.		Average.	Range.		Average.	Range.		Average.	Range.		Average.	Range.	
		90 per cent output.	100 per cent output.		90 per cent output.	100 per cent output.		90 per cent output.	100 per cent output.		90 per cent output.	100 per cent output.		90 per cent output.	100 per cent output.
January-March	$1.44	$1.19-$1.56	$1.19-$2.32	$0.25	$0.00-$0.32	$0.00-$0.73	$0.31	$0.20-$0.47	$0.20-$0.57	$2.00	$1.73-$2.22	$1.73-$3.44	$2.63	$2.35-$2.94	$2.35-$3.05
April-June	1.44	1.14- 1.70	1.14- 2.20	.25	.00- .34	.00- .47	.32	.23- .47	.23- .86	2.01	1.66- 2.17	1.66- 2.83	2.68	1.99- 2.76	1.99- 2.88
July-September	1.44	1.21- 1.65	1.21- 1.83	.26	.00- .38	.00- .48	.33	.23- .41	.23- .44	2.03	1.72- 2.19	1.72- 2.55	2.96	2.02- 3.13	2.02- 3.13
October-December	1.60	1.37- 1.66	1.37- 2.21	.34	.00- .39	.00- .40	.39	.28- .52	.28- .57	2.33	2.02- 2.56	2.02- 3.00	2.81	2.49- 2.93	2.49- 2.95
Year	1.48	1.23- 1.80	1.23- 2.00	.27	.00- .36	.00- .46	.34	.23- .45	.23- .51	2.09	1.84- 2.19	1.84- 2.78	2.78	2.21- 2.88	2.21- 2.93

BITUMINOUS COAL - UTAH

CHART 38.—Production tonnage, by quarters for 1918, of 11 Operators in Utah.

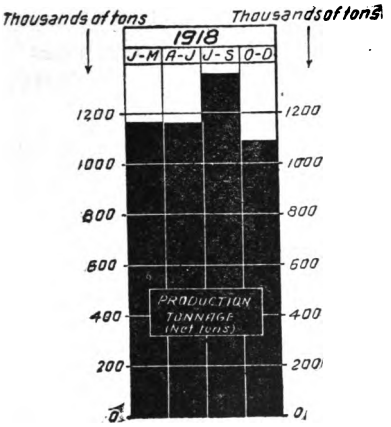


CHART 40.—Distribution of Amount paid by purchaser between the various principal Costs and the Margin, based on each dollar of Sales Realization, by quarters in 1918, in Utah

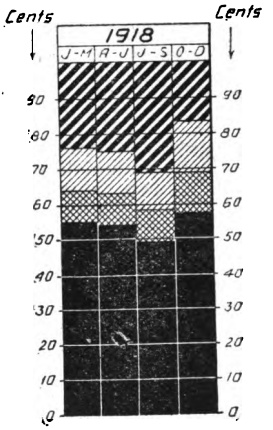
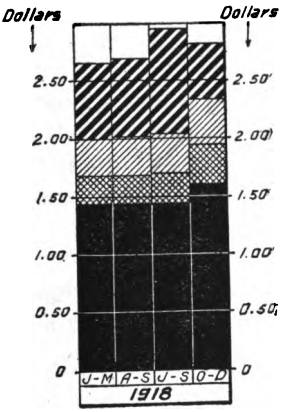
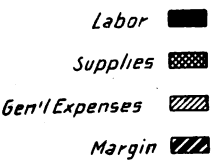


CHART 39.—Average Costs and Sales Realizations per ton, by quarters for 1918, of 11 Operators in Utah.





One operator, whose output was about 2,000,000 tons in 1918, coked 38 per cent of his product.

The proportion of the total output of Utah mined by machines is stated by the United States Geological Survey to have been 54.8 per cent in 1917.

5. Relation of the costs to the sales realizations.

The following table shows the distribution, by quarters and for the year 1918, between the items of labor, supplies, general expense, and margin of each dollar of sales realization received by the operator:

TABLE 179.—*Distribution of the amount paid by the purchaser between the various principal costs and the margin, based on each dollar of sales realization, for the State of Utah, 1918, by quarters and for the year.*

Period.	Costs.				Margin.
	Labor.	Supplies.	General expense.	Total f. o. b. mine.	
State:	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*
January-March	55	9	12	76	24
April-June	54	9	12	75	25
July-September	49	9	11	69	31
October-December	57	12	14	83	17
Year	53	10	12	75	25

These facts are shown in graphic form in Chart 40 (facing p. 292).

6. Comparison of claimed and revised costs.

The foregoing tables present costs which have in some cases been revised by the accountants of the commission from the claimed figures reported on the original schedules by the operators. Table 90 in the appendix to this report shows the claimed 1918 costs, compiled in all cases directly from the figures submitted by the operators.

The changes brought about through the revision in the average costs for the year 1918 for the 11 operators were as follows:

Item.	Claimed.	Revised.	Increase (I) or decrease (D) due to revision.
Production ... tons	4,892,305	4,801,681	[1] 90,624 (D)
Labor ... per ton	$1.46	$1.48	$0.02 (I)
Supplies ... do	.30	.27	.03 (D)
General expense ... do	.41	.34	.07 (D)
Total f. o. b. mine ... do	2.17	2.09	.08 (D)

[1] Due to exclusion of power-house fuel.

The increase of 2 cents in the average State revised labor cost over the claimed was caused by the use of the revised production tonnage as a divisor. The total claimed labor cost was $7,130,133 and the total revised labor cost was $7,092,061. The downward revision results from various adjustments made by the commission, which resulted in the elimination of certain items which had erroneously been included under labor costs by the reporting operators.

The costs claimed by some of the operators in Utah were obviously open to question as to their accuracy. Such operators were required by the commission to furnish detailed information in support of their claimed costs. The examination of such detailed information revealed the fact that they had in some cases included in their general expense such items as income and excess profits taxes, etc. In other cases the costs had been inflated principally through the inclusion of officers' salaries which were far in excess of those paid in neighboring operations of similar size, and by excessive charges for the items of depreciation and depletion which had not been computed in accordance with the rules prescribed in the instructions of the commission.

7. *1918 costs shown by thickness of seam mined.*

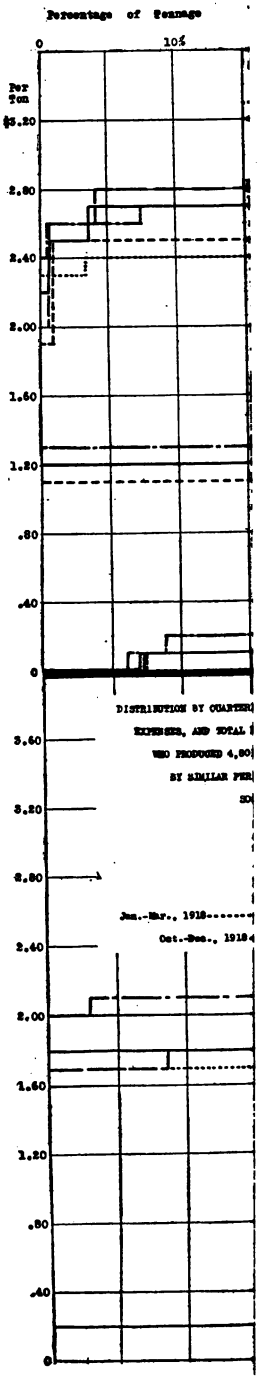
About 72 per cent of the output of Utah came from four producers who operated more than one mine. Most of these producers did not report the costs of each mine separately. In order to include them in a tabulation to show costs by thickness of seam it was necessary to use the average of the seams mined by them. This has led to the inclusion of data in the tabulation for the 11 operators which to a slight extent vitiates its scientific value, since it is not known whether equal tonnage was derived from mines which had seams above or below the average thickness. The tabulation by thickness of seam for the 11 operators follows:

TABLE 180.—*Seam tabulation of revised costs for 11 operators in Utah.*

Thickness of seam.	Number of operators.	Production, 1918.	Costs per ton.			
			Labor.	Supplies.	General expense.	Total f. o. b. mine.
		Tons.				
84 to 95 inches	2	261,070	$1.65	$0.27	$0.38	$2.30
120 to 131 inches	4	684,277	1.50	.29	.44	2.23
144 to 155 inches [1]	5	3,856,334	1.46	.27	.32	2.05
Total	11	4,801,681	1.48	.27	.34	2.09

[1] Includes one operator with 216-inch seam.

DIAGRAM XV



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The following table shows the distribution of the output between the different thicknesses of seams:

TABLE 181.—*Distribution, between seams, of output of 11 operators in Utah.*

Thickness of seam.	11 operators producing 4,801,681 tons in 1918.	
	Number of operators.	Per cent of output.
84 to 95 inches	2	5.4
120 to 131 inches	4	14.3
144 to 155 inches	4	77.9
216 to 227 inches	1	2.4
Total	11	100.0

There was a decrease in the average labor cost with the increase in thickness of seam. There is no close correlation shown between the various supplies costs and thickness of seam.

General expense is less affected than labor cost by conditions of a physical nature, like thickness of seam, but is closely connected with the commercial and financial economies of operation. The following comparison of the seven one-mine operators with the four operators of two or more mines is of interest:

TABLE 182.—*Comparison of average revised costs: Operators of one mine with operators of two or more mines in Utah.*

	Number of operators.	Number of mines.	Output, 1918.			Cost per ton.			
			Total output.	Output per operator.	Output per mine.	Labor	Supplies.	General expense.	Total f. o. b. mine.
			Tons.	*Tons.*	*Tons.*				
1 mine	7	7	1,319,920	188,560	188,560	$1.56	$0.20	$0.41	$2.17
2 or more mines	4	13	3,481,761	870,440	267,828	1.45	.30	.30	2.05
Total	11	20	4,801,681	436,516	240,084	1.48	.27	.34	2.09

The general expense cost of operators of two or more mines was lower than that of the one-mine operators.

Part III. Comparative costs and sales realizations, August 1917–December, 1918.

1. Representativeness of statistics presented.

Representative figures were not obtained by the commission for costs and sales realizations prior to August, 1917, in Utah. Use has,

therefore, been made of the monthly reports covering the last five months of 1917. Nearly every one of the operators that appears in the 1917 appears also in the 1918 figures, but there are a few unimportant exceptions, which do not affect the general comparability of the 1917 figures with those of 1918. The average total f. o. b. mine costs, sales realizations, and margins of about 95 per cent of the entire output mined in the State are presented.

2. The revised costs, sales realizations, and production figures, and analyses of the fluctuations, August, 1917–December, 1918.

The significance of the seven periods selected for presenting the figures for August, 1917–December, 1918, for the State of Utah is as follows:

August, 1917.—The greater part of this month was prior to the fixing, by Executive order of August 21, 1917, of maximum prices for bituminous coal not sold under contracts made prior to that date, and the establishment of a fuel administration to regulate the fuel situation.

September–October, 1917.—This period directly followed the fixing, by Executive order of August 21, 1917, of maximum prices for bituminous coal not sold under contracts made prior to that date, and the establishment of a fuel administration to regulate the fuel situation. The 1917 wage scale continued in operation during these two months.

November–December, 1917.—This period directly followed the increase in maximum prices allowed by Executive order in consequence of the adoption of a new wage scale (1917–18), which was higher than that adopted earlier in 1917.

January–February, 1918.—During this period the prices fixed November 1, 1917, continued. The number of operators in the State from whom 1918 figures were obtained increased over that from whom August–December, 1918, figures were available.

March, 1918.—Effective March 11, 1917, the Fuel Administration established new maximum prices for the State.

April–May, 1918.—Beginning with this period, practically the entire output of coal, whether sold under contract or not, was subject to the governmental maximum prices. The 1917–18 wage scale continued in operation.

June–December, 1918.—This period followed the reduction made by the Fuel Administration of 10 cents per ton, effective May 25, 1918, in the maximum prices for the State. Throughout this period the official maximum prices remained unchanged, and the 1917–18 wage scale continued in effect.

TABLE 183.—*Revised costs and sales realizations of operators in the State of Utah, August, 1917–December, 1918.*

Period.	Number of operators.	Production.	Total f. o. b. mine cost per ton.	Sales realization per ton.	Margin per ton.
		Tons.			
August, 1917	8	293,626	$1.55	$2.40	$0.85
September–October, 1917	8	609,791	1.72	2.29	.50
November–December, 1917	8	771,589	1.82	2.67	.87
January–February, 1918	11	822,495	1.99	2.68	.61
March, 1918	11	354,702	2.03	2.53	.55
April–May, 1918	11	761,356	2.02	2.63	.69
June–December, 1918	11	2,863,128	2.14	2.88	.7

On August 21, 1917, the Government first fixed prices under the Lever Act. The prices fixed by Executive order for the sale of coal not then under contract in the State on August 21, 1917, were as follows: Run of mine, $2.60; prepared sizes, $2.85; slack, $2.35. The average proportions which these three classes of coal formed of the total output, based on actual returns for all operators in the State who reported to the Federal Trade Commission during the period August–December, 1917, were as follows: Run of mine, 27 per cent; prepared sizes, 39 per cent; slack, 34 per cent. Had the entire output of the eight operators been sold at the prices established August 21, 1917, it would have brought them a sales realization of $2.61 per ton. The eight operators actually received during September–October, 1917, a sales realization of $2.29 per ton. The average total f. o. b. mine cost of the eight operators was, for September–October, 1917, $1.72 per ton (an increase of 17 cents over August), while their average monthly tonnage was 304,896 tons (an increase over that in August—293,626 tons). Their margin during September–October was 57 cents per ton—a decrease of 28 cents from August.

Effective November 1, 1917, a 45-cent increase in the established maximum prices was allowed by Executive order, to take care of an increase in the wage scale which went into effect at that time. The average f. o. b. mine cost of the eight operators for November–December, 1917 ($1.82 per ton), increased 10 cents over that for September–October, 1917. The output increased to an average of 385,795 tons per month. Their average sales realization for November–December, 1917, was $2.67 per ton (an increase of 38 cents), and their margin 85 cents per ton (an increase of 28 cents).

During January–February, 1918, the average total f. o. b. mine cost of the 11 operators who reported for the 12 months of 1918 was $1.99 per ton; their sales realization, $2.68; and their margin, 69 cents per ton.

Effective March 11, 1918, the Fuel Administration made a change in the existing maximum prices for the State. The new prices, including the November 1, 1917, price increase because of the wage

increase, were as follows: Run of mine, $3.10; prepared sizes, $3.75; slack, $1.95. Applying to these prices the proportions (already stated) which these three classes of coal formed of the total output, a sales realization of $2.96 per ton was possible had the entire output been sold at the maximum prices. The total f. o. b. mine cost of the 11 operators during March, 1918, was $2.03 per ton—an increase of 4 cents over the average for January–February. Their output during March was 354,702 tons—a decrease from the average for January–February (411,248 tons). The sales realization in March was $2.53 per ton (a decrease of 15 cents from January–February), and the margin was 50 cents per ton (a decrease of 19 cents). The total f. o. b. mine cost of the 11 operators during April–May, 1918, was $2.02 per ton—a decrease of 1 cent from March. The production in April–May showed an increase, averaging 380,678 tons per month, as compared with 354,702 tons in March. The sales realization was $2.63 (an increase of 10 cents), and the margin 61 cents per ton (an increase of 11 cents).

Effective May 25, 1918, the Fuel Administration made a reduction of 10 cents per ton in the official maximum prices for the State. During the period June–December, 1918, there was no change in the official maximum prices for this State. The 11 operators had an average f. o. b. mine cost of $2.14 per ton—an increase of 12 cents per ton over April–May. Their production during the last seven months was higher than that of April–May—averaging 409,018 tons per month. The average sales realization of the 11 operators for June–December, 1918, was $2.88 per ton (an increase of 25 cents over April–May), and their margin 74 cents per ton (an increase of 13 cents).

CHAPTER XIII.—WASHINGTON.

Part I. Introduction.

1. Definition of the various producing districts or fields.

The distribution of output between the various coal-producing districts in Washington has been made in accordance with the areas and kinds of coal included in those districts as defined by the Fuel Administration in its order effective March 29, 1917. The output comprised in the different districts is as follows:

Kittitas Bituminous district includes bituminous coal mined in Kittitas County.

Pierce-King Bituminous district includes bituminous coal mined in Pierce, King, Lewis, and Skagit Counties.

Subbituminous district includes subbituminous coal mined in Lewis, Thurston, and King Counties.

Since the Fuel Administration gave no specific titles to these districts, the foregoing descriptive titles are used in this report.

The location of these districts is shown on the map of Washington (facing p. 300).

2. General statistics of output.

The statistics in this section for coal produced in Washington have been compiled from reports published by the United States Geological Survey.

The proportion which the output of Washington has formed of the total bituminous coal output of the United States is as follows:

	Per cent.		Per cent.
1911	0.9	1915	0.5
1912	.7	1916	.6
1913	.8	1917	.7
1914	.7	1918	.7

Since the Geological Survey statistics are shown by counties and the State as a whole, the tonnage of Lewis and King Counties, which lie in both the Pierce-King Bituminous district and in the Subbituminous district, has been allocated in the proportions of those counties, as shown in operators' reports to the commission for 1918.

The following statement shows the proportions which the output of the various districts formed of the State total:

Year.	Production.	Proportion of total produced in each district.		
		Kittitas bituminous district.	Pierce-King bituminous district.	Sub-bituminous district.
	Tons.	*Per cent.*	*Per cent.*	*Per cent.*
1911	3,572,815	35	44	21
1912	3,360,932	37	43	20
1913	3,877,891	34	44	22
1914	3,064,820	40	39	21
1915	2,429,095	36	42	22
1916	3,038,588	43	36	21
1917	4,009,902	44	35	21

The United States Geological Survey has collected information on the "average value per ton" for a long series of years. This average is obtained by dividing the total selling value by the total tonnage.[42]

The following table shows this information for 1911–1917:

TABLE 184.—*Production and average value, 1911–1917, by producing districts and State of Washington.*

Year.	Kittitas bituminous district.		Pierce-King bituminous district.		Subbituminous district.		State.	
	Production.	Average value per ton.	Production.	Average value per ton.	Production.	Average value per ton.	Production.	Average value per ton.
	Tons.		*Tons.*		*Tons.*		*Tons.*	
1911	1,256,745	$2.67	1,559,132	$2.07	756,938	$2.09	3,572,815	$2.29
1912	1,237,427	2.72	1,439,920	2.28	683,585	2.03	3,360,932	2.39
1913	1,334,155	2.70	1,695,682	2.27	848,054	2.11	3,877,891	2.38
1914	1,242,800	2.29	1,190,902	2.26	631,118	1.92	3,064,820	2.20
1915	879,392	2.38	1,014,558	2.18	535,145	1.81	2,429,095	2.17
1916	1,318,029	2.41	1,086,474	2.28	634,085	1.99	3,038,588	2.27
1917	1,743,639	2.62	1,409,291	2.89	856,972	2.43	4,009,902	2.68

In its reports for 1916 and 1917 the Geological Survey published "average values" in more detail than in previous reports. The following table is compiled from statistics appearing in the 1916 and 1917 reports:

[42] "The value of coal given in this report is the realization value at the mine f. o. b. cars, and the average value per ton is the average realization price obtained by dividing the total value by the number of tons sold or produced. The coal used at the mine, the coal coked by the producing company, and the coal used in some other industry by the company operating the mine—an appreciable proportion of the whole—is never sold, and the value placed upon it is either an estimate or the figure at which it is carried on the books, either of which is supposedly based on what the coal would have brought if sold or what other fuel for the respective purpose would have cost if its purchase had been necessary. In other words, the values given represent returns to the operators for coal sold, plus estimated exchange value of that not sold. These figures do not necessarily show prices or even an average of the prices of coal at the mine." U. S. Geological Survey (Mineral Resources of the United States, 1917. Part II, p. 952.)

WASHINGTON

BITUMINOUS AND SUBBITUMINOUS COAL FIELDS AND PRODUCING DISTRICTS

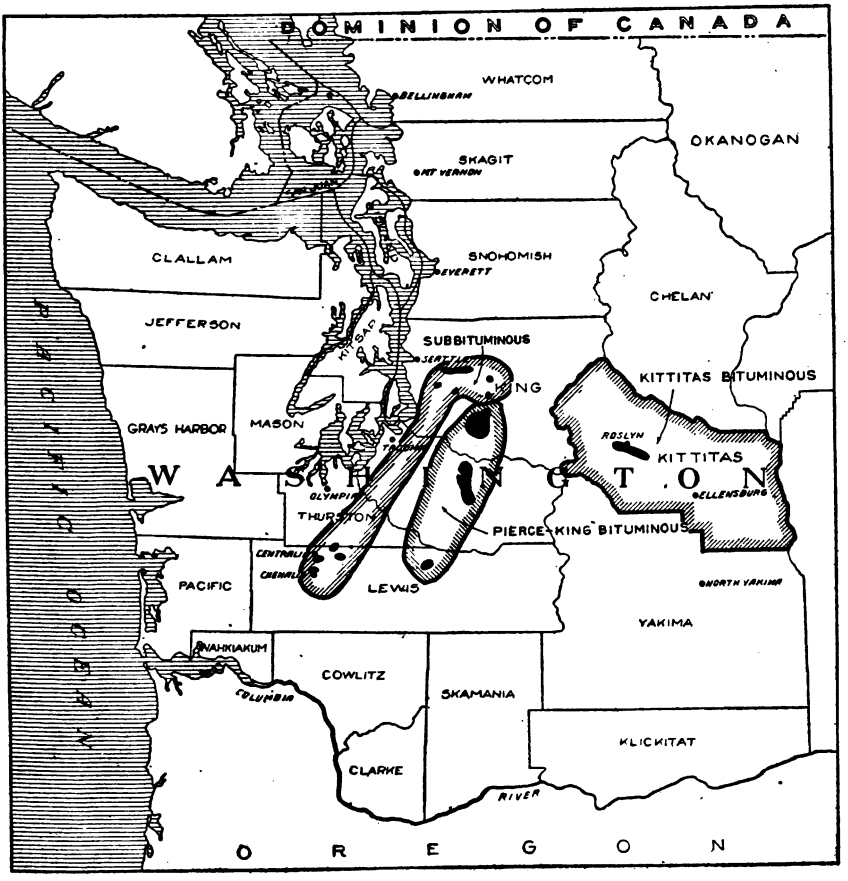

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TABLE 185.—*Disposition of production and average values, by producing districts and State of Washington, 1916–17.*

District.	Loaded at mines for shipment.				Sold to local trade and used by employees.			
	1916		1917		1916		1917	
	Production.	Average value per ton.	Production.	Average value per ton.	Production.	Average value per ton.	Production.	Average value per ton.
	Tons.		*Tons.*		*Tons.*		*Tons.*	
Kittitas Bituminous	1,252,871	$2.44	1,665,698	$2.65	19,976	$2.19	19,523	$2.43
Pierce-King Bituminous	873,004	2.22	1,164,065	2.85	29,182	2.27	20,360	2.78
Subbituminous	575,156	2.02	784,566	2.47	26,796	2.11	31,723	2.27
State	2,701,031	2.28	3,614,329	2.68	75,954	2.19	71,606	2.46

District.	Used at mines for steam and heat.				Made into coke at mines.			
	1916		1917		1916		1917	
	Production.	Average value per ton.	Production.	Average value per ton.	Production.	Average value per ton.	Production.	Average value per ton.
	Tons.		*Tons.*		*Tons.*		*Tons.*	
Kittitas Bituminous	45,182	$1.50	58,418	$1.66	.....	.....	.....	.....
Pierce-King Bituminous	47,425	1.50	67,298	2.08	136,863	$2.94	157,568	$3.57
Subbituminous	32,133	1.27	40,683	1.98	.....	.....	.....	.....
State	124,740	1.44	166,399	1.91	136,863	2.94	157,568	3.57

District.	Total.			
	1916		1917	
	Production.	Average value per ton.	Production.	Average value per ton.
	Tons.		*Tons.*	
Kittitas Bituminous	1,318,029	$2.41	1,743,639	$2.62
Pierce-King Bituminous	1,086,474	2.28	1,409,291	2.89
Subbituminous	634,085	1.99	856,972	2.43
State	3,038,588	2.27	4,009,902	2.68

3. Character of the consumption of Washington coal.

As is the case in many of the coal fields west of the Middle Atlantic States, a considerable portion of the output of bituminous coal in Washington goes into domestic consumption. The proportion thus used varies from district to district, and is influenced partly by the nature of the coal, partly by the availability of substitutes, and partly by the extent of preparation given the coal for the purpose of adapting it to domestic use.

The importance of the increased value imparted to coal specially prepared was recognized by the Fuel Administration. In its order,

effective March 29, 1918, fixing maximum prices for the different districts (see p. 343), it granted substantially higher prices for washed coals than for the screened coals which came from the same districts.

The following statement compiled from statistics in the Annual Report of Coal Mines of Washington, by the State mine inspector, for the year ending December 31, 1918, shows the proportions of the output washed and the proportion of resulting waste:

District.	Tonnage hoisted.	Washed.		Cleaned coal.		Refuse.	
		Tonnage.	Per cent of tonnage hoisted.	Tonnage.	Per cent of tonnage hoisted.	Tonnage.	Per cent of tonnage hoisted.
Kittitas Bituminous	1,741,762	23,082	1.3	20,699	1.2	2,383	0.1
Pierce-King Bituminous	1,833,459	1,489,361	81.3	1,075,642	58.7	413,719	22.6
Subbituminous	1,059,567	464,692	43.8	374,430	35.3	90,262	8.5
State	4,634,788	1,977,135	42.7	1,470,771	31.7	506,364	11.0

The exact extent to which the coal from this State enters into domestic use is not definitely ascertainable from any figures at present available. In the 1915 report of the United States Geological Survey,[48] some statistics of the distribution of bituminous coal by classes of consumers, for Washington, are shown. From these the percentages of consumption shown in the following statement have been compiled:

	Per cent.
Railroad	47.3
Coke	8.4
Gas	5.1
Domestic and small steam trade	13.8
Industrial steam trade	19.7
Exported	.5
Mine fuels	5.2
Total output (tons)	2,429,095

The following statistics of distribution of shipments of bituminous coal, by classes of consignees, August 3, 1918, to February 1, 1919, are taken from an unpublished manuscript of the Geological Survey and are published by permission of that bureau:

	Per cent.
Railroad fuel	44.7
Tidewater	8.1
United States Government	2.6
State and county institutions	1.5
Public utilities, gas and electric	7.9
Retail dealers	30.7
Industries, including iron and steel	4.5
	100.0

[48] Mineral Resources of the United States, 1915. Part II, pp. 471-472.

This use of coal for domestic consumption introduces, to a greater or less extent, changes in the character of the seasonal demand. In Report No. 2, on Pennsylvania anthracite, the commission pointed out the wide differences between the character of the demand for coal for domestic consumption and the demand for industrial use. If the coal is of a nature which can be stored without undue fire risk, and if the domestic consumer can be induced to buy his coal during the summer, the domestic demand has a less seasonal character than where such conditions do not exist. Despite the marked seasonal fluctuations, the annual domestic demand is likely to be a fairly constant quantity from year to year. On the other hand, the industrial demand for coal, while not always subject to such extreme seasonal fluctuations as that of coal for domestic use, is likely to vary to a much greater extent from year to year, influenced as it is primarily by periods of industrial prosperity or depression.

Part II. 1918 costs and sales realizations.

1. Number and extent of operations covered.

The 1918 production of the 24 operators in Washington from whom cost reports were obtained by the commission, was as follows:

	Tons.	Per cent.
Kittitas Bituminous district: 5 operators from whom costs were obtained for 12 months	1,730,555	100.0
Pierce-King Bituminous district:		
9 operators from whom costs were obtained for 12 months	1,040,274	86.5
1 operator from whom costs were obtained for 12 months, but which were excluded for certain reasons	35,899	3.0
2 operators from whom costs were obtained for less than the full 12 months (actual tonnage reported, 58,669 tons) estimated yearly tonnage	126,924	10.5
Total	1,203,097	100.0
Subbituminous district: 7 operators from whom costs were obtained for 12 months	899,929	100.0
State:		
21 operators from whom costs were obtained for 12 months	3,670,758	95.8
1 operator from whom costs were obtained for 12 months, but which were excluded for certain reasons	35,899	.9
2 operators from whom costs were obtained for less than the full 12 months (actual tonnage reported, 58,669 tons) estimated yearly tonnage	126,924	3.3
Total	3,833,581	100.0

The above figures are shown *inclusive* of power-house fuel, for comparison with the United States Geological Survey statistics. The total output of the 21 operators from whom costs were obtained for 12 months was, *exclusive* of power-house fuel, 3,496,653 tons.

According to the statistics issued by the Geological Survey the output of Washington during 1918 was 4,082,212 tons, of which 193,606 tons were used at the mine for steam and heat. The commission obtained cost information on 3,765,326 tons produced in 1918 (including power-house fuel), forming 92 per cent of the total as reported by the Survey. It publishes in this report cost informa-

tion on 3,496,653 tons of commercial production, which is 90 per cent of the output reported by the Survey, after exclusion of the mine fuel.

2. Classification of producers by number of mines operated.

The costs of the 21 operators shown in the tabulation for Washington cover the output of 32 mines. The following table shows the number of mines operated by the different producers:

TABLE 186.—*Number of mines operated by different producers in Washington.*

Number of mines run by each operator.	Number of operators.	Proportion of total number.	Production tonnage, 1918.	Proportion of total production.
Kittitas Bituminous district:		*Per cent.*	*Tons.*	*Per cent.*
1 mine	2	40.0	157,133	9.5
2 mines	1	20.0	105,689	6.4
4 mines	1	20.0	243,321	14.6
5 mines	1	20.0	1,155,629	69.5
Total (number of mines, 13)	5	100.0	1,661,772	100.0
Pierce-King Bituminous district:				
1 mine	8	88.9	578,711	57.8
2 mines	1	1.1	423,264	42.2
Total (number of mines, 10)	9	100.0	1,001,975	100.0
Subbituminous district:				
1 mine	5	71.4	433,595	52.1
2 mines	2	28.6	399,311	47.9
Total (number of mines, 9)	7	100.0	832,906	100.0
State:				
1 mine	15	71.4	1,169,439	33.4
2 mines	4	19.0	928,264	26.6
4 mines	1	4.8	243,321	7.0
5 mines	1	4.8	1,155,629	33.0
Total (number of mines, 32)	21	100.0	3,496,653	100.0

It will be seen that in the State 15 producers (71 per cent of the total number shown in the table) operated only one mine each and produced 33 per cent of the output. The following statement shows the average number of mines operated by a producer, and the average production per mine operated by one-mine operators and by operators of two or more mines, for each district and for the State of Washington:

District.	Average number of mines operated by a producer.	Average production per mine operated by—		
		One-mine operator.	Operators of two or more mines.	All operators combined.
	Mines.	*Tons.*	*Tons.*	*Tons.*
Kittitas Bituminous	2.6	78,567	136,785	127,839
Pierce-King Bituminous	1.1	72,339	211,632	100,198
Subbituminous	1.3	86,719	99,828	92,545
State	1.5	77,963	136,895	109,270

The number and size of mines in Washington are shown in further detail in the report for 1917 of the United States Geological Survey from which the following statistics are derived:[44]

Annual output of mines.	Mines.		Tonnage.	
	Number.	Proportion of total in State.	Average production per mine.	Proportion of total State output.
		Per cent.	*Tons.*	*Per cent.*
200,000 tons and over	8	14.3	267,648	53.3
100,000 to 199,999 tons	6	10.7	134,693	20.2
50,000 to 99,999 tons	7	12.5	65,543	11.4
10,000 to 49,999 tons	22	39.3	25,250	13.9
Under 10,000 tons	13	23.2	3,559	1.2
State	56	100.0	71,605	100.0

3. Classification of producers by size of output.

The 21 producers tabulated for Washington are classified by size of their output in 1918, exclusive of power-house fuel, as follows:

TABLE 187.—*Classification of 21 Washington operators by size of output.*

Production during 1918.	Number of operators.	Proportion of total number.	Tonnage produced, 1918.	Proportion of total production.
Kittitas Bituminous district:		*Per cent.*	*Tons.*	*Per cent.*
Under 50,000 tons	1	20.0	25,779	1.6
50,000 to 99,999 tons				
100,000 to 499,999 tons	3	60.0	480,364	28.9
500,000 tons and over	1	20.0	1,155,629	69.5
Total	5	100.0	1,661,772	100.0
Pierce-King Bituminous district:				
Under 50,000 tons	3	33.3	83,716	8.3
50,000 to 99,999 tons	4	44.5	284,367	28.4
100,000 to 499,999 tons	2	22.2	633,892	63.3
Total	9	100.0	1,001,975	100.0
Subbituminous district:				
Under 50,000 tons	2	28.6	24,850	3.0
50,000 to 99,999	3	42.8	208,291	25.0
100,000 to 499,999 tons	2	28.6	599,765	72.0
Total	7	100.0	832,906	100.0
State:				
Under 50,000 tons	6	28.6	134,345	3.8
50,000 to 99,999 tons	7	33.3	492,658	14.1
100,000 to 499,999 tons	7	33.3	1,714,021	49.0
500,000 tons and over	1	4.8	1,155,629	33.1
Total	21	100.0	3,496,653	100.0

If the two operators from whom costs were received for less than the full 12 months, and the one operator from whom costs were received but in unusable form, be considered, it would be found that one operator had an estimated annual production of over 100,000

[44] Mineral Resources of the United States, 1917. Part II, pp. 947–948.

tons. The other two operators had an average estimated annual production of 27,538 tons. If returns for the full 12 months had been received from them it would be found that about 33 per cent of the operators produced about 5 per cent of the tonnage.

4. The 1918 costs and sales realizations shown by districts.

There was no change in the official wage scale for bituminous coal miners in Washington during 1918. Therefore the labor costs per ton for the period were principally affected by changes in the production tonnage and not by changes in the rate of wages paid labor. The effect of decreased production in increasing labor costs can be clearly seen on Diagrams XVI and XVII (opposite p. 310), and Charts 41 and 42 (opposite p. 308).

Tables 91 to 100 in the appendix to this report (see pp. 448–457) show the costs and the sales realizations arranged from low to high in 10-cent groupings for each period shown. Throughout the tables for a given district the costs are shown for the same operators, but the costs of any given operator do not necessarily hold the same relative position in the 10-cent groups for each period. The shift of any operator in his relative position, from period to period, is generally slight.

The tables show, for each quarter and for the year as a whole, by 10-cent groupings, the tonnage produced at that cost, its per cent of the total production, the place of the group in the accumulated percentage, and the number of operators whose costs fell within each 10-cent group.

As there were only five operators who filed returns for the full 12 months in Kittitas Bituminous district, no detailed appendix tables are shown for this district.

A summary of the significant facts brought out in Appendix Tables 91 to 100, and similar facts for the Kittitas Bituminous district, appears in the following tables, in which are compared the true average cost and sales realization, the range of 90 per cent of the output which had the lowest costs and sales realizations, and the extreme range for the entire output of the 21 operators:

TABLE 188.—*1918 quarterly and yearly revised costs and sales realization for 5 operators in Kittitas bituminous district of the State of Washington, showing averages and range for 90 per cent and for 100 per cent of total output.*

Period.	Costs per net ton.												Sales realization per net ton.		
	Labor.			Supplies.			General expense.			Total f. o. b. mine.					
	Average.	Range. 90 per cent output.	Range. 100 per cent output.	Average.	Range. 90 per cent output.	Range. 100 per cent output.	Average.	Range. 90 per cent output.	Range. 100 per cent output.	Average.	Range. 90 per cent output.	Range. 100 per cent output.	Average.	Range. 90 per cent output.	Range. 100 per cent output.
January-March	$1.93	$1.80-$1.95	$1.80-$2.24	$0.20	$0.10-$0.21	$0.10-$0.22	$0.22	$0.18-$0.31	$0.18-$0.46	$2.35	$2.10-$2.34	$2.10-$2.92	$3.08	$2.90-$3.55	$2.90-$3.65
April-June	1.87	1.81- 1.90	1.81- 1.97	.25	.16- .28	.16- .28	.23	.19- .31	.19- .44	2.35	2.30- 2.33	2.30- 2.63	3.10	2.31- 3.48	2.31- 3.71
July-September	1.85	1.77- 1.85	1.77- 1.90	.25	.08- .28	.08- .28	.24	.19- .32	.19- .43	2.34	2.16- 2.36	2.16- 2.46	3.06	2.90- 3.46	2.90- 3.46
October-December	1.95	1.83- 1.96	1.83- 2.20	.22	.17- .22	.17- .22	.26	.22- .37	.22- .50	2.43	2.33- 2.55	2.33- 2.89	3.07	2.90- 3.50	2.90- 3.50
Year	1.90	1.84- 1.90	1.84- 2.01	.23	.15- .25	.15- .25	.24	.19- .33	.19- .45	2.37	2.22- 2.38	2.22- 2.65	3.08	2.91- 3.45	2.91- 3.58

TABLE 189.—*1918 quarterly and yearly revised costs and sales realization for 7 operators in Pierce-King bituminous district of the State of Washington, showing averages and range for 90 per cent and for 100 per cent of total output.*

Period.	Costs per net ton.												Sales realization per net ton.		
	Labor.			Supplies.			General expense.			Total f. o. b. mine.					
	Average.	Range. 90 per cent output.	Range. 100 per cent output.	Average.	Range. 90 per cent output.	Range. 100 per cent output.	Average.	Range. 90 per cent output.	Range. 100 per cent output.	Average.	Range. 90 per cent output.	Range. 100 per cent output.	Average.	Range. 90 per cent output.	Range. 100 per cent output.
January-March	$2.69	$2.42-$2.78	$2.42-$3.31	$0.44	$0.19-$0.64	$0.19-$0.65	$0.49	$0.37-$0.71	$0.37-$1.01	$3.62	$3.17-$4.30	$3.17-$4.57	$4.29	$3.34-$4.49	$3.34-$6.59
April-June	2.76	2.18- 3.16	2.18- 6.22	.43	.25- .48	.25- 1.39	.56	.48- .66	.48- .97	3.75	3.21- 4.14	3.21- 8.58	4.29	3.39- 4.44	3.39- 6.04
July-September	2.71	2.08- 2.93	2.08- 4.40	.40	.17- .52	.17- 1.22	.54	.42- .67	.42- .85	3.65	2.86- 4.12	2.86- 6.39	4.44	3.48- 4.75	3.48- 5.80
October-December	2.82	2.33- 2.99	2.33- 3.53	.45	.26- .54	.26- 1.04	.58	.45- .65	.45- .80	3.85	3.09- 4.05	3.09- 5.24	4.43	3.39- 4.92	3.39- 5.55
Year	2.75	2.26- 2.93	2.26- 3.97	.43	.22- .52	.22- 1.97	.53	.45- .69	.45- .81	3.71	3.20- 3.92	3.20- 5.70	4.36	3.42- 4.59	3.42- 5.92

TABLE 190.—*1918 quarterly and yearly revised costs and sales realization for 7 operators in subbituminous district of the State of Washington, showing averages and range for 90 per cent and for 100 per cent of total output.*

Period.	Costs per net ton.												Sales realization per net ton.		
	Labor.			Supplies.			General expense.			Total f. o. b. mine.					
	Average.	Range. 90 per cent output.	Range. 100 per cent output.	Average.	Range. 90 per cent output.	Range. 100 per cent output.	Average.	Range. 90 per cent output.	Range. 100 per cent output.	Average.	Range. 90 per cent output.	Range. 100 per cent output.	Average.	Range. 90 per cent output.	Range. 100 per cent output.
January-March	$2.01	$1.21-$2.41	$1.21-$2.41	$0.35	$0.09-$0.47	$0.09-$0.97	$0.30	$0.12-$0.44	$0.12-$0.48	$2.66	$1.42-$3.32	$1.42-$3.62	$3.37	$2.04-$4.15	$2.04-$4.15
April-June	2.02	1.25- 2.60	1.25- 2.70	.38	.09- .51	.09- 1.01	.33	.10- .50	.10- .58	2.73	1.44- 3.57	1.44- 4.72	3.17	1.91- 4.14	1.91- 4.50
July-September	2.15	1.25- 2.76	1.25- 2.97	.41	.10- .58	.10- 1.20	.36	.10- .56	.10- .56	2.92	1.45- 3.80	1.45- 4.52	3.16	1.84- 3.98	1.84- 4.63
October-December	2.22	1.25- 3.05	1.25- 3.05	.43	.12- .55	.12- 1.16	.37	.11- .61	.11- .61	3.02	1.48- 4.21	1.48- 4.21	3.23	1.93- 4.03	1.93- 4.61
Year	2.10	1.24- 2.69	1.24- 2.69	.39	.10- .49	.10- 1.14	.34	.11- .52	.11- .52	2.83	1.45- 3.70	1.45- 4.10	3.24	1.93- 4.08	1.93- 4.45

BITUMINOUS AND SUBBITUMINOUS COAL — WASHINGTON

CHART 41.—Production tonnage, by quarters for 1918, of 21 Operators by producing Districts in Washington

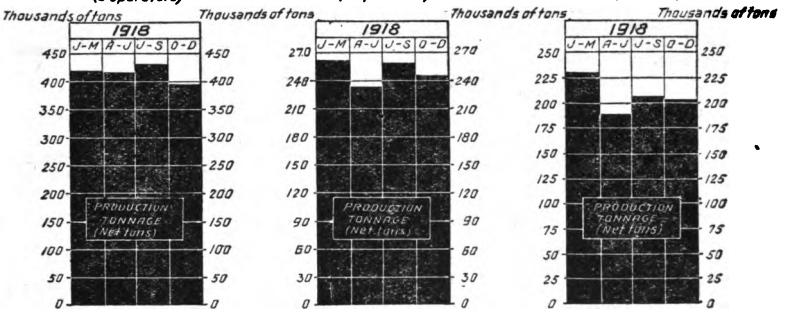


CHART 42.—Average Costs and Sales Realizations per ton, by quarters for 1918, of 21 Operators, by producing Districts in Washington

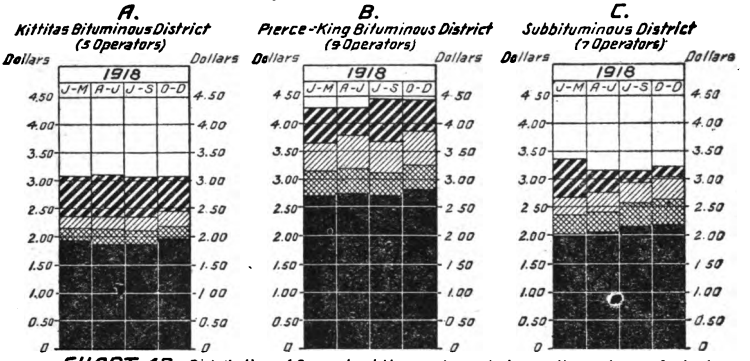
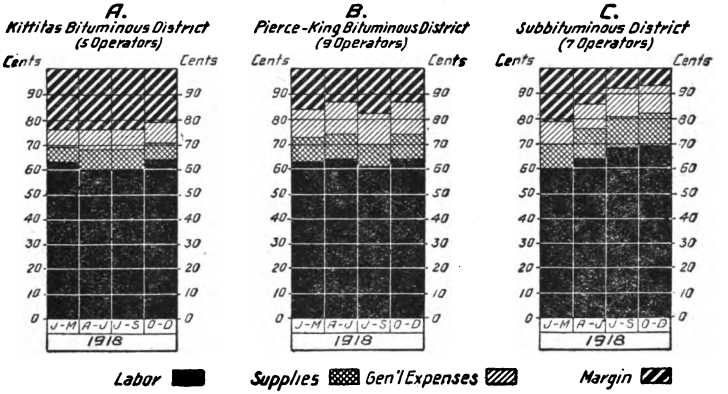


CHART 43.—Distribution of Amount paid by purchaser between the various principal Costs and the Margin, based on each Dollar of Sales Realization, by quarters in 1918, in Washington.



The following table of yearly averages is given for the sake of ready comparison of the different districts:

TABLE 191.—*Average costs and sales realizations of all Washington districts for the year 1918.*

District.	Production.	Costs per ton.				Sales realization per ton.	Margin per ton.
		Labor.	Supplies.	General expense.	Total f. o. b. mine.		
	Tons.						
Kittitas Bituminous	1,661,772	$1.90	$0.23	$0.24	$2.37	$3.08	$0.71
Pierce-King Bituminous	1,001,975	2.75	.43	.53	3.71	4.36	.65
Subbituminous	832,906	2.10	.39	.34	2.83	3.24	.41

The labor cost of the Pierce-King Bituminous district was 65 cents higher than that of the Subbituminous and 85 cents higher than that of the Kittitas Bituminous district.

Contrary to the situation generally existing in most of the coal-producing regions of the United States, these wide differences in labor cost do not appear to be primarily attributable to the differences in thickness of seam mined. As will be noted from Table 194 (see p. 313), all of the production reported for the Kittitas Bituminous district came from seams averaging between 4 and 5 feet, while in the Subbituminous district, where labor costs were 20 cents per ton higher than in the Kittitas Bituminous district, about half the tonnage reported came from thicker seams, and in the Pierce-King Bituminous district about 30 per cent came from thicker seams. The differences are rather to be attributed to local conditions, which differ widely between different districts. For example, in some of the operations, especially in King and Pierce Counties, where the coal is mined on heavy pitches, the labor cost is abnormally high, and an unusual amount of rock and other waste has to be taken from the mine in proportion to the commercial coal obtained. Furthermore, the amount of preparation needed to put the coal into merchantable condition differs widely. As was shown on page 302, of the total tonnage hoisted in the Pierce-King district 81.3 per cent was washed, producing 58.7 per cent of clean coal and 22.6 per cent of waste, while in the Subbituminous district of the total tonnage hoisted, 43.8 per cent was washed, producing 35.3 per cent of clean coal and 8.5 per cent of waste; and in the Kittitas Bituminous district 1.3 per cent was washed, producing 1.2 per cent of clean coal and 0.1 per cent of waste.

The proportion of the total output of Washington mined by machines is stated by the United States Geological Survey to have been 5.8 per cent in 1917.

5. Relation of the costs to the sales realizations.

The following table shows the distribution, by quarters and for the year 1918, between the items of labor, supplies, general expense, and margin of each dollar of sales realization received by the operator:

TABLE 192.—*Distribution of the amount paid by the purchaser between the various principal costs and the margin, based on each dollar of sales realization, for the Kittitas Bituminous, the Pierce-King Bituminous, and the Subbituminous districts in Washington, 1918, by quarters and for the year.*

Period.	Costs.				Margin.
	Labor.	Supplies.	General expense.	Total f. o. b. mine.	
Kittitas Bituminous district:	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*
January-March	63	6	7	76	24
April-June	60	8	8	76	24
July-September	60	8	8	76	24
October-December	64	7	8	79	21
Total	62	7	8	77	23
Pierce-King Bituminous district:					
January-March	63	10	11	84	16
April-June	64	10	13	87	13
July-September	61	9	12	82	18
October-December	64	10	13	87	13
Year	63	10	12	85	15
Subbituminous district:					
January-March	60	10	9	79	21
April-June	64	12	10	86	14
July-September	68	13	11	92	8
October-December	69	13	11	93	7
Year	65	12	10	87	13

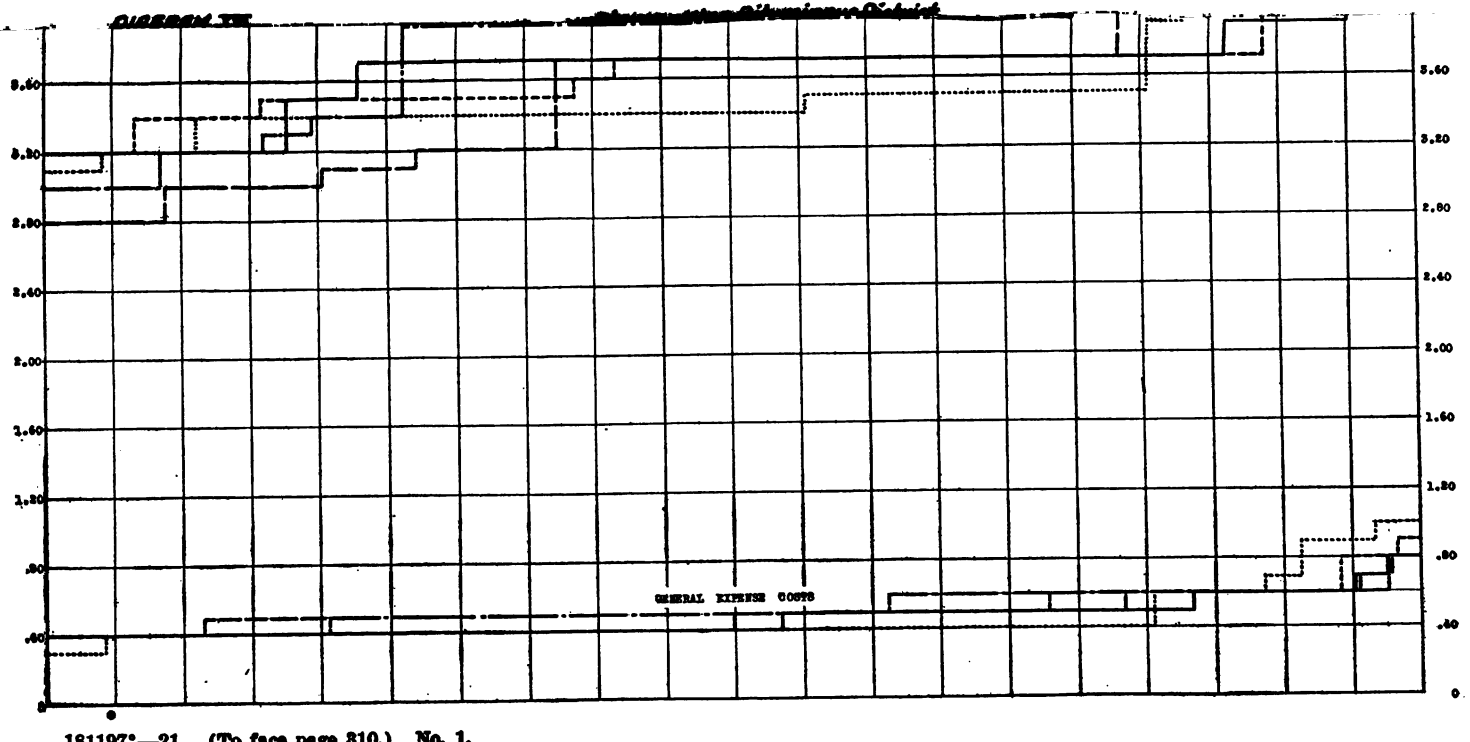
These facts are shown in graphic form in Chart 43 (facing p. 308).

6. Comparison of claimed and revised costs.

The foregoing tables present costs which have in some cases been revised by the accountants of the commission from the claimed figures reported on the original schedules by the operators. Tables 101 and 102 in the appendix to this report show the claimed 1918 costs for the Pierce-King district and for the Subbituminous district, compiled in all cases directly from the figures submitted by the operators.

The changes brought about through the revision in the average costs for the year 1918 for the 21 operators were as follows:

BITUMINOUS COAL — WASHINGTON

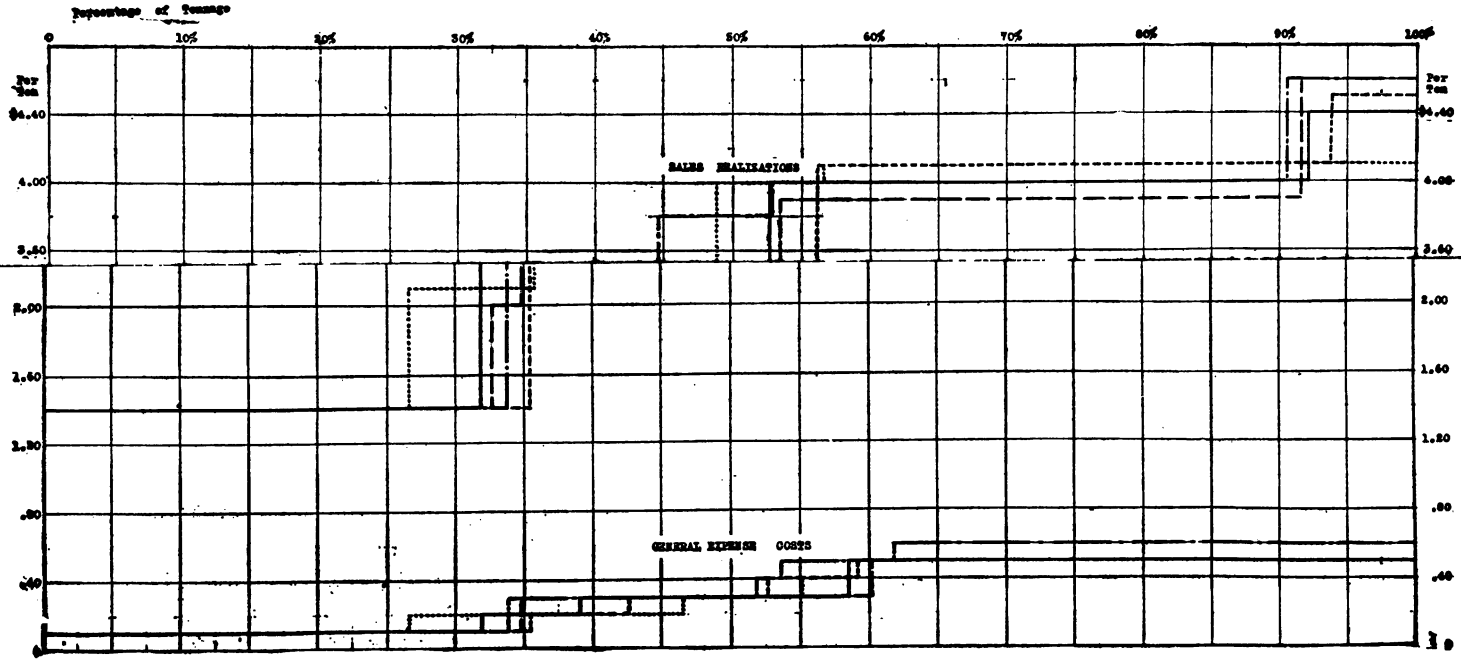


181197°—21. (To face page 310.) No. 1.

SUBBITUMINOUS COAL—WASHINGTON

DIAGRAM XVII

Subbituminous District



181197°—21. (To face page 310.) No. 2.

Item.	Claimed costs.	Revised costs.	Increase (I) or decrease (D) due to revision.
Kittitas Bituminous district:			
Production (tons)	1,730,555	1,661,772	[1] 68,783 (D)
Labor ... per ton	$1.82	$1.90	$0.08 (I)
Supplies ... do	.28	.23	.05 (D)
General expense ... do	.42	.24	.18 (D)
Total f. o. b. mine ... do	2.52	2.37	.15 (D)
Pierce-King Bituminous district:			
Production (tons)	1,040,274	1,001,975	[1] 38,299 (D)
Labor ... per ton	$2.64	$2.75	$0.11 (I)
Supplies ... do	.62	.43	.19 (I)
General expense ... do	.82	.53	.29 (D)
Total f. o. b. mine ... do	4.08	3.71	.37 (D)
Subbituminous district:			
Production (tons)	899,929	832,906	[1] 67,023 (D)
Labor ... per ton	$1.95	$2.10	$0.15 (I)
Supplies ... do	.51	.39	.12 (D)
General expense ... do	.39	.34	.05 (D)
Total f. o. b. mine ... do	2.85	2.83	.02 (D)
State:			
Production (tons)	3,670,758	3,496,653	[1] 174,105 (D)
Labor ... per ton	$2.08	$2.19	$0.11 (I)
Supplies ... do	.44	.32	.12 (D)
General expense ... do	.52	.35	.17 (D)
Total f. o. b. mine ... do	3.04	2.86	.18 (D)

[1] Due to exclusion of power-house fuel.

The increase of 11 cents in the average State revised labor cost over the claimed is caused by the use of the revised production tonnage as a divisor. The total claimed labor cost was $7,651,043 and the revised labor cost was $7,649,655.

The costs claimed by some of the operators were obviously open to question as to their accuracy. Such operators were required by the commission to furnish detailed information in support of their claimed costs. The examination of such detailed information revealed the fact that they had often included under labor and supplies charges for development and additions and betterments, and under general expense costs such items as contingent and maintenance reserves, etc. In some cases the costs had been inflated principally through the inclusion of officers' salaries, which were far in excess of those paid in neighboring operations of similar size and by excessive charges for the items of depreciation and depletion which had not been computed in accordance with the rules prescribed in the instructions of the commission. The chief instances of revision affected three operators and involved about 12 per cent of the total tonnage of the State.

7. 1918 costs shown by thickness of seam.

About 43 per cent of the output of Washington came from six producers who operated more than one mine. Most of these producers did not report the costs of each mine separately. In order to include them in a tabulation to show costs by thickness of seam it was necessary to use the average of the seams mined by them. This has led to the inclusion of data in the tabulation for the 21 operators, which to a slight extent vitiates its scientific value, since it is not known whether equal tonnage was derived from mines which had seams above or below the average thickness. The tabulation by thickness of seam for the 21 operators follows:

TABLE 193.—*Seam tabulation of revised costs for 21 operators in Washington.*

Thickness of seam.	Number of operators.	Production.	Cost per ton.			
			Labor.	Supplies.	General expense.	Total f. o. b. mine.
Kittitas Bituminous district: 48 to 59 inches	5	*Tons.* 1,661,772	$1.90	$0.23	$0.24	$2.37
Pierce-King Bituminous district:						
36 to 47 inches	3	191,238	2.60	.40	.57	3.57
48 to 59 inches	2	498,958	2.77	.37	.49	3.63
60 to 71 inches	2	235,798	2.82	.57	.58	3.97
144 to 155 inches[1]	2	75,981	2.61	.46	.73	3.80
Total	9	1,001,975	2.74	.43	.54	3.71
Subbituminous district:						
48 to 59 inches	2	399,311	2.68	.60	.49	3.77
60 to 71 inches	2	96,355	2.11	.46	.35	2.92
96 to 107 inches[2]	3	337,240	1.41	.13	.15	1.69
Total	7	832,906	2.10	.39	.34	2.83
State:						
36 to 47 inches	3	191,238	2.60	.40	.57	3.57
48 to 59 inches	9	2,560,041	2.19	.31	.33	2.82
60 to 71 inches	4	332,153	2.61	.54	.52	3.67
96 to 107 inches[3]	2	71,394	2.06	.23	.31	2.60
192 to 203 inches[4]	3	341,827	1.54	.18	.24	1.97
Total	21	3,496,653	2.19	.32	.35	2.86

[1] Includes 1 operator with 300-inch seam.
[2] Includes 1 operator with 84-inch seam and 1 operator with 192-inch seam.
[3] Includes 1 operator with 84-inch seam.
[4] Includes 1 operator with 144-inch seam and 1 operator with 300-inch seam.

In order to eliminate the effect of the inclusion of average thicknesses, where producers operated two or more mines, a seam tabulation has been made of the 15 one-mine operators. It will be noted from the following table that the tonnage of the 15 one-mine oper-

ators was somewhat more regularly distributed among the different thicknesses of seam than was the case with the 21 operators:

TABLE 194.—*Distribution, between seams, of output of 21 operators and 15 one-mine operators in Washington.*

Thickness of seam.	5 operators, producing 1,661,772 tons in 1918.		2 operators, producing 157,133 tons in 1918.	
	Number of operators.	Per cent of output.	Number of operators.	Per cent of output.
Kittitas Bituminous district: 48 to 59 inches	5	100.0	2	100.0
	9 operators, producing 1,001,975 tons in 1918.		8 operators, producing 578,711 tons in 1918.	
Pierce-King Bituminous district:				
36 to 47 inches	3	19.1	3	33.0
48 to 59 inches	2	49.8	1	13.1
60 to 71 inches	2	23.5	2	46.8
144 to 155 inches	1	5.2	1	9.1
300 to 311 inches	1	2.4	1	4.0
Total	9	100.0	8	100.0
	7 operators, producing 832,906 tons in 1918.		5 operators, producing 433,595 tons in 1918.	
Subbituminous district:				
48 to 59 inches	2	47.9	.....	.....
60 to 71 inches	2	11.6	2	22.2
84 to 95 inches	1	1.4	1	2.8
96 to 107 inches	1	7.2	1	13.7
192 to 203 inches	1	31.9	1	61.3
Total	7	100.0	5	100.0
	21 operators, producing 3,496,653 tons in 1918.		15 operators, producing 1,169,439 tons in 1918.	
State:				
36 to 47 inches	3	5.5	3	16.4
48 to 59 inches	9	73.2	3	19.9
60 to 71 inches	4	9.5	4	28.4
84 to 95 inches	1	.3	1	1.0
96 to 107 inches	1	1.7	1	5.1
144 to 155 inches	1	1.5	1	4.5
192 to 203 inches	1	7.6	1	22.7
300 to 311 inches	1	.7	1	2.0
Total	21	100.0	15	100 0

The tabulation of cost, by thickness of seam, for the 15 one-mine operators follows:

TABLE 195.—*Seam tabulation of revised costs for 15 one-mine operators in Washington.*

Thickness of seam.	Number of operators.	Production.	Costs per ton.			
			Labor.	Supplies.	General expense.	Total f. o. b. mine.
Kittitas Bituminous district: 48 to 59 inches	2	*Tons.* 157,133	$2.00	$0.19	$0.44	$2.63
Pierce-King Bituminous district:						
36 to 47 inches [1]	4	266,932	2.58	.35	.53	3.46
60 to 71 inches	2	235,798	2.82	.57	.58	3.97
144 to 155 inches [2]	2	75,981	2.61	.46	.73	3.80
Total	8	578,711	2.68	.45	.58	3.71
Subbituminous district:						
60 to 71 inches	2	96,355	2.11	.46	.35	2.92
96 to 107 inches [3]	3	337,240	1.41	.13	.15	1.69
Total	5	433,595	1.57	.20	.19	1.96
State:						
36 to 47 inches	3	191,238	2.60	.40	.57	3.57
48 to 59 inches	3	232,827	2.17	.20	.44	2.81
60 to 71 inches	4	332,153	2.61	.54	.52	3.67
96 to 107 inches [4]	2	71,394	2.06	.23	.31	2.60
192 to 203 inches [5]	3	341,827	1.54	.18	.24	1.97
Total	15	1,169,439	2.18	.32	.42	2.92

[1] Includes 1 operator with 54-inch seam.
[2] Includes 1 operator with 300-inch seam.
[3] Includes 1 operator with 84-inch seam and 1 operator with 192-inch seam.
[4] Includes 1 operator with 84-inch seam.
[5] Includes 1 operator with 144-inch seam and 1 operator with 300-inch seam.

A summary of the principal facts relating to labor, supplies, and total f. o. b. mine cost of the 15 one-mine operators, arranged in comparative form for the districts and the State, is shown below:

Thickness of seam.	Kittitas Bituminous district.			Pierce-King Bituminous district.			Subbituminous district.			State.		
	Labor.	Supplies.	Total f. o. b. mine cost.	Labor.	Supplies.	Total f. o. b. mine cost.	Labor.	Supplies.	Total f. o. b. mine cost.	Labor.	Supplies.	Total f. o. b. mine cost.
36 to 47 inches				$2.58	$0.35	$3.46				$2.60	$0.40	$3.57
48 to 59 inches	$2.00	$0.19	$2.63							2.17	.20	2.81
60 to 71 inches				2.82	.57	3.97	$2.11	$0.46	$2.92	2.61	.54	3.67
96 to 107 inches							1.41	.13	1.69	2.06	.23	2.60
144 to 155 inches				2.61	.46	3.80						
192 to 203 inches										1.54	.18	1.97
Total	2.00	.19	2.63	2.68	.45	3.71	1.57	.20	1.96	2.18	.32	2.92

In the above figures for the Washington output there is no such close correlation shown between the decrease in labor costs with increase in thickness of seam mined as has been found to exist generally in the various producing districts of other States. The diversity

of mining conditions between operators in the same district, as well as between districts (see p. 309), has obscured the effect of thickness of seam. The available definite information about the character of the mines, of the kind obtained from the State reports of Iowa and Kansas (see pp. 51 and 81), permits no such analysis to show the nature of the diverse mining conditions.

General expense is less affected than labor cost by conditions of a physical nature, like thickness of seam, but is closely connected with the commercial and financial economies of operation. The following comparison of the 15 one-mine operators with the six operators of two or more mines is of interest:

TABLE 196.—*Comparison of average revised costs: Operators of one mine with operators of two or more mines in Washington.*

District.	Number of operators.	Number of mines.	Output, 1918.			Costs per ton.			
			Total output.	Output per operator.	Output per mine.	Labor.	Supplies.	General expense.	Total f. o. b. mine.
Kittitas Bituminous:			*Tons.*	*Tons.*	*Tons.*				
1 mine	2	2	157,133	78,567	78,567	$2.00	$0.19	$0.44	$2.63
2 or more mines	3	11	1,504,639	501,546	136,785	1.89	.23	.22	2.34
Total	5	13	1,661,772	332,354	127,829	1.90	.23	.24	2.37
Pierce-King Bituminous:									
1 mine	8	8	578,711	72,339	72,339	2.68	.45	.58	3.71
2 or more mines	1	2	423,264	423,264	211,632	(1)	(1)	(1)	(1)
Total	9	10	1,001,975	111,331	100,198	2.74	.43	.53	3.71
Subbituminous:									
1 mine	5	5	433,595	86,719	86,719	1.57	.20	.19	1.96
2 or more mines	2	4	399,311	199,656	99,828	2.68	.60	.49	3.77
Total	7	9	832,906	118,987	92,545	2.10	.39	.34	2.83
State:									
1 mine	15	15	1,169,439	77,963	77,963	2.18	.32	.42	2.92
2 or more mines	6	17	2,327,214	387,869	136,895	2.19	.32	.32	2.83
Total	21	32	3,496,653	166,507	109,270	2.19	.32	.35	2.86

[1] In order to avoid identification these costs are omitted.

In the Kittitas Bituminous district, the Pierce-King Bituminous district, and for the State, the general expense costs of the operators of two or more mines were lower than those of the one-mine operators. In the Subbituminous district they were higher.

Part III. Comparative costs and sales realizations, August, 1917–December, 1918.

1. Representativeness of statistics presented.

Representative figures were not obtained by the commission for costs and sales realizations prior to August, 1917, in the various

Washington districts. Use has, therefore, been made of the monthly reports covering the last five months of 1917. Nearly everyone of the operators that appears in the 1917 appears also in the 1918 figures, but there are a few unimportant exceptions, which do not affect the general comparability of the 1917 figures with those of 1918. The average total f. o. b. mine costs, sales realizations, and margins of about 90 per cent of the entire output mined in the districts are presented for these districts.

2. The revised costs, sales realizations, and production figures, and analyses of the fluctuations, by districts, August, 1917–December, 1918.

KITTITAS BITUMINOUS DISTRICT.

The significance of the six periods selected for presenting the figures for August, 1917–December, 1918, for the Kittitas Bituminous district, is as follows:

August, 1917.—The greater part of this month was prior to the fixing, by Executive order of August 21, 1917, of maximum prices for bituminous coal not sold under contracts made prior to that date, and the establishment of a Fuel Administration to regulate the fuel situation.

September–October, 1917.—This period directly followed the fixing, by Executive order of August 21, 1917, of maximum prices for bituminous coal not sold under contracts made prior to that date, and the establishment of a Fuel Administration to regulate the fuel situation. The 1917 wage scale continued in operation during these two months.

November–December, 1917.—This period directly followed the increase in maximum prices allowed by Executive order in consequence of the adoption of a new wage scale (1917–18) which was higher than that adopted earlier in 1917.

January–March, 1918.—During this period the prices fixed November 29, 1917, continued.

April–May, 1918.—Effective March 29, 1918, the Fuel Administration made a change in the maximum prices established for this district.

June–December, 1918.—This period followed the reduction made by the Fuel Administration of 10 cents per ton, effective May 25, 1918, in the maximum prices for the district. Throughout this period the official maximum prices remained unchanged, and the 1917–18 wage scale continued in effect.

TABLE 197.—*Revised costs and sales realizations of operators in the Kittitas bituminous district of Washington, August, 1917–December, 1918.*

Period.	Number of operators.	Production.	Total f. o. b. mine cost per ton.	Sales realization per ton.	Margin per ton.
		Tons.			
August, 1917	5	156,310	$1.85	$2.64	$0.79
September–October, 1917	5	287,728	1.91	2.64	.73
November–December, 1917	5	304,310	2.16	2.96	.80
January–March, 1918	5	419,927	2.35	3.08	.73
April–May, 1918	5	285,716	2.34	3.13	.79
June–December, 1918	5	956,129	2.38	3.06	.68

On August 21, 1917, the Government first fixed prices under the Lever Act. The prices fixed by Executive order for the sale of coal not then under contract in this district on August 21, 1917, were as follows: Run of mine, $3.25; prepared sizes, $3.50; slack, $3. The average proportions which these three classes of coal formed of the total output, based on actual returns for all operators in this district who reported to the Federal Trade Commission during the period August–December, 1917, were as follows: Run of mine, 84 per cent; prepared sizes, 6 per cent; slack, 10 per cent. Had the entire output of the five operators been sold at the prices established August 21, 1917, it would have brought them a sales realization of $3.24 per ton. The five operators actually received, during September–October, 1917, a sales realization of $2.64 per ton. The average total f. o. b. mine cost of the five operators was, for September–October, $1.91 per ton, an increase of 6 cents over that in August, while their average monthly tonnage was 143,864 tons, a decrease from that in August—156,310 tons. Their margin during September–October was 73 cents per ton, a decrease of 6 cents from August.

Effective November 1, 1917, a 45-cent increase in the established maximum prices was allowed by Executive order to take care of an increase in the wage scale which went into effect at that time. The average f. o. b. mine cost of the five operators for November–December, 1917 ($2.16 per ton), increased 25 cents over that for September–October, 1917. The output increased to an average of 152,155 tons per month. Their average sales realization for November–December, 1917, was $2.96 per ton, an increase of 32 cents over September–October, and their margin 80 cents per ton, an increase of 7 cents.

During January–March, 1918, the average total f. o. b. mine cost of the five operators who reported for the 12 months in 1918 was $2.35 per ton; their sales realization, $3.08; and their margin, 73 cents per ton.

Effective March 29, 1918, new maximum prices were fixed by the Fuel Administration for the district. The new prices, including the 45-cent increase effective November 1, 1917, because of the wage in-

crease, were: Screened coal—Run of mine, $3.55. Prepared sizes—Lump and egg, $3.95; special steam and gas, $3.25; slack, $2.50. Washed coal—Prepared sizes, $4.

The total f. o. b. mine cost of the five operators during April–May, 1918, was $2.34 per ton, a decrease of 1 cent from the average for January–March. The production in April–May showed an increase, being 142,858 tons per month, as compared with an average for January–March of 139,976 tons. Their sales realization was $3.13, an increase of 5 cents, and the margin 79 cents per ton, an increase of 6 cents.

Effective May 25, 1918, the Fuel Administration made a 10-cent reduction in the existing maximum prices for the district. During the period, June–December, 1918, there was no change in the official maximum prices for the district. The five operators had an average f. o. b. mine cost of $2.38 per ton, an increase of 4 cents per ton over April–May. Their production during the last seven months was lower than that of April–May, averaging 136,580 tons per month. Their average sales realization for June–December, 1918, was $3.06, a decrease of 7 cents from April–May, and their margin 68 cents per ton, a decrease of 11 cents.

PIERCE-KING BITUMINOUS DISTRICT.

The significance of the seven periods selected for presenting the figures for August, 1917–December, 1918, for the Pierce-King Bituminous district, is as follows:

August, 1917.—This period has been described under Kittitas Bituminous district (see p. 316).

September, 1917.—This period directly followed the fixing, by Executive order of August 21, 1917, of maximum prices for bituminous coal not sold under contracts made prior to that date and the establishment of a fuel administration to regulate the fuel situation. The 1917 wage scale continued in operation during this month.

October, 1917.—This period followed the change in maximum prices, effective October 1, 1917, made by the Fuel Administration, in the maximum prices established for King and Pierce Counties.

November–December, 1917.—This period has been described under Kittitas Bituminous district.

January–March, 1918.—During this period the prices fixed November 1, 1917, continued. The number of operators in this district from whom 1918 figures were obtained was less than that from whom August–December, 1917, figures were available.

The last two periods (April–May, 1918, and June–December, 1918) have been described under Kittitas Bituminous district.

TABLE 198.—*Revised costs and sales realizations of operators in the Pierce-King Bituminous district of Washington, August, 1917–December, 1918.*

Period.	Number of operators.	Production.	Total f. o. b. mine cost per ton.	Sales realization per ton.	Margin per ton.
		Tons.			
August, 1917	10	136,067	$2.88	$3.44	$0.56
September, 1917	10	137,394	2.87	3.31	.44
October, 1917	10	149,219	2.77	3.66	.89
November–December, 1917	10	272,918	3.36	3.85	.49
January–March, 1918	9	261,417	3.62	4.29	.67
April–May, 1918	9	155,854	3.75	4.28	.53
June–December, 1918	9	584,704	3.75	4.42	.67

On August 21, 1917, the Government first fixed prices under the Lever Act. The prices fixed by Executive order for the sale of coal not then under contract in this district on August 21, 1917, were as follows: Run of mine, $3.25; prepared sizes, $3.50; slack, $3. The average proportions which these three classes of coal formed of the total output, based on actual returns for all operators in this district who reported to the Federal Trade Commission during the period August–December, 1917, were as follows: Run of mine, 9 per cent; prepared sizes, 85 per cent; slack, 6 per cent. Had the entire output of the 10 operators been sold at the prices established August 21, 1917, it would have brought them a sales realization of $3.45 per ton. The 10 operators actually received, during September, 1917, a sales realization of $3.31 per ton. The average total f. o. b. mine cost of the 10 operators was, for September, 1917, $2.87 per ton (a decrease of 1 cent from that in August), while their average monthly tonnage was 137,394 tons, a slight increase from that in August (136,067 tons). Their margin for September was 44 cents per ton, a decrease of 12 cents from August.

Effective October 1, 1917, the Fuel Administration made a change in the existing maximum prices for the output of King and Pierce Counties. The new prices were as follows: Run of mine, $3.25; prepared sizes, $4.50; slack, $3. Every one of the operators shown in Table 198, was in King and Pierce Counties. The f. o. b. mine cost of the 10 operators for October, 1917 ($2.77 per ton), decreased 10 cents from that for September. The output increased to 149,219 tons. Their average sales realization for October was $3.66 per ton, an increase of 35 cents over September, and their margin 89 cents per ton, an increase of 45 cents.

Effective November 1, 1917, a 45-cent increase in the established maximum prices was allowed by Executive order to take care of an increase in the wage scale which went into effect at that time. The average f. o. b. mine cost of the 10 operators for November–December, 1917 ($3.36 per ton), increased 59 cents over that for September–

October, 1917. The output decreased to an average of 136,459 tons per month. Their average sales realization for November–December, 1917, was $3.85 per ton (an increase of 19 cents over October), and their margin 49 cents per ton (a decrease of 40 cents).

During January–March, 1918, the average total f. o. b. mine cost of the nine operators who reported for the 12 months in 1918 was $3.62 per ton; their sales realization, $4.29; and their margin, 67 cents per ton.

Effective March 29, 1918, new maximum prices were fixed by the Fuel Administration for the district. The new prices, including the 45-cent increase effective November 1, 1917, because of the wage increase, were as follows: Prepared sizes—lump nut, $6; mixed steam, $5.25; straight steam and gas, $4.80; slack, $2.50. The total f. o. b. mine cost of the nine operators during April–May, 1918, was $3.75 per ton—an increase of 13 cents over the average for January–March. Their production in April–May showed a decrease, averaging 77,927 tons per month, as compared with an average for January–March of 87,139 tons. Their sales realization was $4.28 (a decrease of 1 cent), and their margin was 53 cents per ton (a decrease of 14 cents).

Effective May 25, 1918, the Fuel Administration made a reduction of 10 cents per ton in the official maximum prices for the district. During the period June–December, 1918, there was no change in the official maximum prices for this district. The nine operators had an average f. o. b. mine cost of $3.75 per ton—the same as April–May. Their production during the last seven months was higher than that of April–May—averaging 83,529 tons per month. Their average sales realization for June–December, 1918, was $4.42 (an increase of 14 cents), and their margin was 67 cents per ton (an increase of 14 cents).

SUBBITUMINOUS DISTRICT.

The significance of the seven periods selected for presenting the figures for August, 1917–December, 1918, for the subbituminous district is as follows:

August, 1917.—This period has been described under Kittitas Bituminous district (see p. 316).

The next two periods (September, 1917, and October, 1917) have been described under the Pierce-King Bituminous district (see p. 318).

November–December, 1917.—This period has been described under Kittitas Bituminous district.

January–March, 1918.—During this period the prices fixed November 1, 1917, continued. The number of operators in the district from whom 1918 figures were obtained increased over that from whom August–December, 1917, figures were available.

The last two periods (April–May, 1918, and June–December, 1918) have been described under Kittitas Bituminous district.

TABLE 199.—*Revised costs and sales realizations of operators in the Sub-bituminous district of Washington, August, 1917–December, 1918.*

Period.	Number of operators.	Production.	Total f. o. b. mine cost per ton.	Sales realization per ton.	Margin per ton.
		Tons.			
August, 1917	5	34,953	$1.87	$2.22	$0.35
September, 1917	5	30,188	2.10	2.32	.22
October, 1917	5	43,993	1.77	2.35	.58
November–December, 1917	5	85,627	2.09	2.59	.50
January–March, 1918	7	230,954	2.66	3.37	.71
April–May, 1918	7	125,525	2.74	3.14	.40
June–December, 1918	7	476,427	2.93	3.20	.27

On August 21, 1917, the Government first fixed prices under the Lever Act. The prices fixed by Executive order for the sale of coal not then under contract in this district on August 21, 1917, were as follows: Run of mine, $3.25; prepared sizes, $3.50; slack, $3. The average proportions which these three classes of coal formed of the total output, based on actual returns for all operators in this district who reported to the Federal Trade Commission during the period August–December, 1917, were as follows: Run of mine, 54 per cent; prepared sizes, 44 per cent; slack, 2 per cent. Had the entire output of the five operators been sold at the prices established August 21, 1917, it would have brought them a sales realization of $3.36 per ton. The five operators actually received, during September, 1917, a sales realization of $2.32 per ton. The average total f. o. b. mine cost of the five operators was, for September, 1917, $2.10 per ton (an increase of 23 cents over August), while their average monthly tonnage was 30,188 tons (a decrease from that in August—34,953 tons). Their margin during September was 22 cents per ton—a decrease of 13 cents from August.

Effective October 1, 1917, the Fuel Administration established new maximum prices for the output of King County. The new prices were as follows: Run of mine, $3.25; prepared sizes, $4.50; slack, $3. Of the five operators shown in Table 199, three operators who produced about 60 per cent of the total output shown were in King County. The total f. o. b. mine cost of the five operators during October, 1917, was $1.77 per ton—a decrease of 33 cents from that of September. There was a marked increase in the output, the production in October being 43,993 tons. Their sales realization in October was $2.35 (an increase of 3 cents), and their margin 58 cents per ton (an increase of 36 cents).

Effective November 1, 1917, a 45-cent increase in the established maximum prices was allowed by Executive order to take care of an

increase in the wage scale which went into effect at that time. The average f. o. b. mine cost of the five operators for November–December, 1917 ($2.09 per ton), increased 32 cents over that for October, 1917. The output decreased to an average of 42,814 tons per month. Their average sales realization for November–December, 1917, was $2.59 per ton (an increase of 24 cents), and their margin 50 cents per ton (a decrease of 8 cents).

During January–March, 1918, the average total f. o. b. mine cost of the seven operators from whom reports were received for the entire 12 months of 1918, was $2.66; sales realization, $3.37; and margin, 71 cents per ton.

Effective March 29, 1918, the Fuel Administration established new maximum prices for the district. They were as follows:

Kind of coal.	King County.	Lewis County.	Thurston County.
Screened coal:			
Run of mine	.....	$2.75	$2.75
Prepared sizes—			
Lump	.....	3.95	3.95
Lump nut	.....	3.25	3.25
Nut	.....	3.00	3.00
Slack	.....	1.25	1.25
Washed coal:			
Prepared sizes—			
Lump	.....	3.95	.....
Lump nut	$5.00	.....	.....
Nut	.....	3.75	.....
Pea	3.50	3.00	.....
Buckwheat	3.25	1.50	.....
Slack	1.50	1.25	.....

The total f. o. b. mine cost of the seven operators during April–May, 1918, was $2.74 per ton—an increase of 8 cents over that for January–March. The production in April–May showed a decrease, averaging 62,762 tons as compared with an average for January–March of 76,984 tons. Their sales realization was $3.14 (a decrease of 23 cents), and their margin 40 cents per ton (a decrease of 31 cents).

Effective May 25, 1918, the Fuel Administration made a reduction of 10 cents per ton in the official maximum prices for the district. During the period June–December, 1918, there was no change in the official maximum prices for this district. The seven operators had an average f. o. b. mine cost of $2.93 per ton—an increase of 19 cents per ton over April–May. Their production during the last seven months was higher than that of April–May—averaging 68,061 tons per month. Their average sales realization for June–December, 1918, was $3.20 per ton (an increase of 6 cents), and their margin 27 cents per ton (a decrease of 13 cents).

CHAPTER XIV.—NORTH DAKOTA.

Part I. Introduction.

1. Definition of the various producing districts or fields.

The distribution of output between the various coal-producing districts in North Dakota has been made in accordance with the areas included in those districts as defined by the Fuel Administration in its order effective May 24, 1918. The output comprised in the different districts is as follows:

Southern district includes all coal mined south of the twelfth standard parallel.

Northern district includes all coal mined north of the twelfth standard parallel.

Since the Fuel Administration gave no specific titles to these districts, the foregoing descriptive titles are used in this report.

The location of these districts is shown on the map of North Dakota (facing p. 324).

2. General statistics of output.

The statistics in this section for coal produced in North Dakota have been compiled from reports published by the United States Geological Survey.

The proportion which the output of North Dakota has formed of the total bituminous coal output of the United States is as follows:

	Per cent.		Per cent.
1911	0.1	1915	0.1
1912	.1	1916	.1
1913	.1	1917	.1
1914	.1	1918	.1

The following statement shows the proportions which the output of the two districts formed of the State total:

Year.	Production.	Proportion of total produced in each district.	
		Southern district.[1]	Northern district.[2]
	Tons.	*Per cent.*	*Per cent.*
1911	502,628	63	37
1912	499,480	72	28
1913	495,320	75	25
1914	506,685	74	26
1915	528,078	77	23
1916	634,912	63	37
1917	790,548	62	38

[1] South of twelfth standard parallel. [2] North of twelfth standard parallel.

The United States Geological Survey has collected information on the "average value per ton" for a long series of years. This average is obtained by dividing the total selling value by the total tonnage.[45]

The following table shows this information for 1911–1917:

TABLE 200.—*Production and average value, 1911–1917, by producing districts and State of North Dakota.*

Year.	Southern district.[1]		Northern district.[2]		State.	
	Production.	Average value per ton.	Production.	Average value per ton.	Production.	Average value per ton.
	Tons.		*Tons.*		*Tons.*	
1911	314,741	$1.31	187,887	$1.64	502,628	$1.43
1912	360,090	1.47	139,390	1.69	499,480	1.53
1913	369,593	1.46	125,727	1.67	495,320	1.52
1914	373,571	1.48	133,114	1.65	506,685	1.52
1915	407,276	1.41	120,802	1.58	528,078	1.45
1916	401,708	1.41	233,204	1.62	634,912	1.49
1917	486,408	1.69	304,140	1.99	790,548	1.80

[1] South of twelfth standard parallel. [2] North of twelfth standard parallel.

In its reports for 1916 and 1917 the Geological Survey published "average values" in more detail than in previous reports. The following table is compiled from statistics appearing in the 1916 and 1917 reports:

TABLE 201.—*Disposition of production and average values, by producing districts and State of North Dakota, 1916–1917.*

District.	Loaded at mines for shipment.				Sold to local trade and used by employees.			
	1916		1917		1916		1917	
	Production.	Average value per ton.	Production.	Average value per ton.	Production.	Average value per ton.	Production.	Average value per ton.
	Tons.		*Tons.*		*Tons.*		*Tons.*	
Southern[a]	302,214	$1.41	369,986	$1.69	87,840	$1.48	100,559	$1.71
Northern[b]	140,538	1.65	189,585	2.01	86,096	1.63	96,341	2.09
State	440,752	1.49	559,571	1.80	173,936	1.55	196,900	1.90

[a] South of twelfth standard parallel. [b] North of twelfth standard parallel.

[45] "The value of coal given in this report is the realization value at the mine f. o. b. cars, and the average value per ton is the average realization price obtained by dividing the total value by the number of tons sold or produced. The coal used at the mine, the coal coked by the producing company, and the coal used in some other industry by the company operating the mine—an appreciable proportion of the whole—is never sold, and the value placed upon it is either an estimate or the figure at which it is carried on the books, either of which is supposedly based on what the coal would have brought if sold or what other fuel for the respective purpose would have cost if its purchase had been necessary. In other words, the values given represent returns to the operators for coal sold plus estimated exchange value of that not sold. These figures do not necessarily show prices or even an average of the prices of coal at the mine." U. S. Geological Survey (Mineral Resources of the United States, 1917. Part II, p. 952).

NORTH DAKOTA
LIGNITE COAL FIELDS
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PRODUCING DISTRICTS

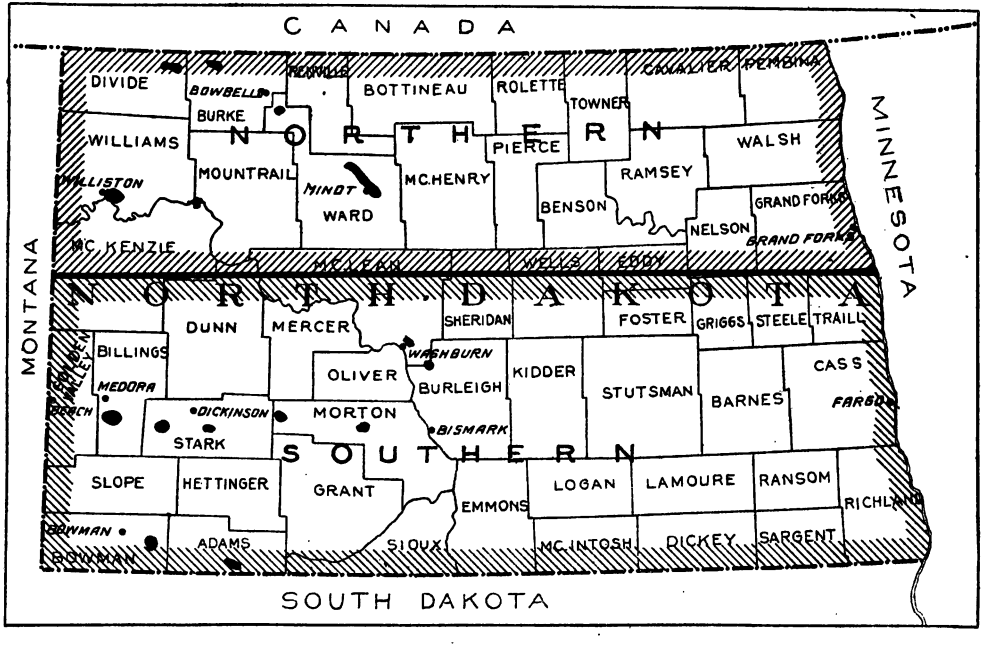


TABLE 201.—*Disposition of production and average values, by producing districts and State of North Dakota, 1916–1917*—Continued.

District.	Used at mines for steam and heat.				Total.			
	1916		1917		1916		1917	
	Production.	Average value per ton.	Production.	Average value per ton.	Production.	Average value per ton.	Production.	Average value per ton.
	Tons.		*Tons.*		*Tons.*		*Tons.*	
Southern [1]	13,654	$1.03	15,863	$1.43	401,708	$1.41	486,408	$1.69
Northern [2]	6,570	.98	18,214	1.31	233,204	1.62	304,140	1.99
State	20,224	1.01	34,077	1.37	634,912	1.49	790,548	1.80

[1] South of twelfth standard parallel. [2] North of twelfth standard parallel.

3. Character of the consumption of North Dakota coal.

A considerable portion of the output of the lignite coal of North Dakota goes into domestic consumption. The proportion thus used varies from district to district, and is influenced partly by the nature of the coal, partly by the availability of substitutes, and partly by the extent of preparation given the coal for the purpose of adapting it to domestic use.

The exact extent to which the coal from this State enters into domestic use is not definitely ascertainable from any figures at present available. In the 1915 report of the United States Geological Survey [46] some statistics of the distribution of lignite coal by classes of consumers, for North Dakota, are shown. From these the percentages of consumption shown in the following statement have been compiled:

	Per cent.
Railroad	0.6
Domestic and small steam trade	84.9
Industrial steam trade	----
Exported	----
Mine fuels	3.3
Special	11.2
Total output (tons)	528,078

This use of coal for domestic consumption introduces, to a greater or less extent, changes in the character of the seasonal demand. In Report No. 2, on Pennsylvania anthracite, the commission pointed out the wide differences between the character of the demand for coal for domestic consumption and the demand for industrial use. If the coal is of a nature which can be stored without undue fire risk, and if the domestic consumer can be induced to buy his coal during the summer, the domestic demand has a less seasonal character

[46] Mineral Resources of the United States, 1915. Part II, pp. 471–472.

than where such conditions do not exist. Despite the marked seasonal fluctuations, the annual domestic demand is likely to be a fairly constant quantity from year to year. On the other hand, the industrial demand for coal, while not always subject to such extreme seasonal fluctuations as that of coal for domestic use, is likely to vary to a much greater extent from year to year, influenced as it is primarily by periods of industrial prosperity or depression.

Part II. 1918 costs and sales realizations.

1. Number and extent of operations covered.

The 1918 production of the 13 operators in North Dakota from whom cost reports were obtained by the commission, was as follows:

	Tons.	Per cent.
Southern district:		
3 operators from whom costs were obtained for 12 months	327,427	83.5
2 operators from whom costs were obtained for less than the full 12 months (actual tonnage reported 45,056 tons) estimated yearly tonnage	64,704	16.5
Total	392,131	100.0
Northern district:		
3 operators from whom costs were obtained for 12 months	67,637	38.8
5 operators from whom costs were obtained for less than the full 12 months (actual tonnage reported 75,853 tons) estimated yearly tonnage	106,488	61.2
Total	174,125	100.0
State:		
6 operators from whom costs were obtained for 12 months	395,064	69.8
7 operators from whom costs were obtained for less than the full 12 months (actual tonnage reported 120,909 tons) estimated yearly tonnage	171,192	30.2
Total	566,256	100.0

The above figures are shown *inclusive* of power-house fuel, for comparison with the United States Geological Survey statistics. The total output of the six operators from whom costs were obtained for 12 months was, *exclusive* of power-house fuel, 380,675 tons.

According to the statistics issued by the Geological Survey, the output of North Dakota during 1918 was 719,733 tons, of which 19,943 tons were used at the mine for steam and heat. The commission obtained cost information on 515,973 tons produced in 1918 (including power-house fuel), forming 72 per cent of the total as reported by the Survey. It publishes in this report cost information on 380,675 tons of commercial production, which is 54 per cent of the output reported by the Survey, after exclusion of the mine fuel.

2. Classification of producers by number of mines operated.

All of the six operators whose costs are shown in the tabulations for 1918 were one-mine operators. Their average production per mine was 63,446 tons.

The number and size of mines are shown in further detail in the report for 1917 of the United States Geological Survey, from which the following statistics are derived:[47]

Annual output of mines.	Mines.		Tonnage.	
	Number.	Proportion of total in State.	Average production per mine.	Proportion of total State output.
		Per cent.	*Tons.*	*Per cent.*
100,000 to 199,999 tons	2	1.1	130,132	32.9
50,000 to 99,999 tons	1	.5	73,276	9.3
10,000 to 49,999 tons	14	7.4	18,103	32.1
Under 10,000 tons	171	91.0	1,190	25.7
State	188	100.0	4,205	100.0

3. Classification of producers by size of output.

The six producers tabulated for North Dakota are classified by size of their output in 1918, exclusive of power-house fuel, as follows:

TABLE 202.—*Classification of six North Dakota operators by size of output.*

Production during 1918.	Number of operators.	Proportion of total number.	Tonnage produced, 1918.	Proportion of total production.
		Per cent.	*Tons.*	*Per cent.*
Under 50,000 tons	5	83.3	94,245	24.8
100,000 to 499,999 tons	1	16.7	286,430	75.2
Total	6	100.0	380,675	100.0

If the seven operators from whom cost reports were received for less than the 12 months during 1918 be considered, it will be found that two operators had an average estimated annual production of 53,022 tons. The remaining five operators had an average estimated annual production of 13,030 tons. Had reports for the full 12 months' period been available from them it would be found that about 77 per cent of the operators produced about 29 per cent of the output.

4. The 1918 costs and sales realizations shown by districts.

There was no change in the official wage scale for bituminous coal miners in North Dakota during 1918. Therefore the labor costs per ton for the period were principally affected by changes in the production tonnage and not by changes in the rate of wages paid labor.

[47] Mineral Resources of the United States, 1917. Part II, pp. 947–948.

The effect of decreased production in increasing labor costs can be clearly seen on Charts 44 and 45 (opposite).

Because of the small number of operators in each district who filed returns for the full 12 months, no detailed appendix tables are shown for either district in North Dakota. In the following tables are compared the true average cost and sales realization, the range of 90 per cent of the output which had the lowest costs and sales realizations, and the extreme range for the entire output of six operators.

LIGNITE COAL — NORTH DAKOTA

CHART 44.—Production tonnage, by quarters for 1918, of 6 Operators by producing Districts in North Dakota.

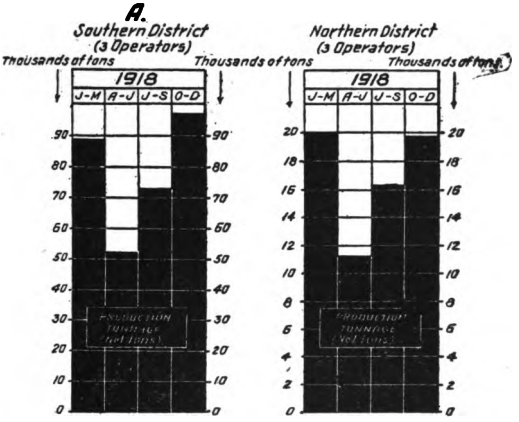


CHART 45.—Average Costs and Sales Realizations per ton, by quarters for 1918, of 6 Operators by producing Districts in North Dakota.

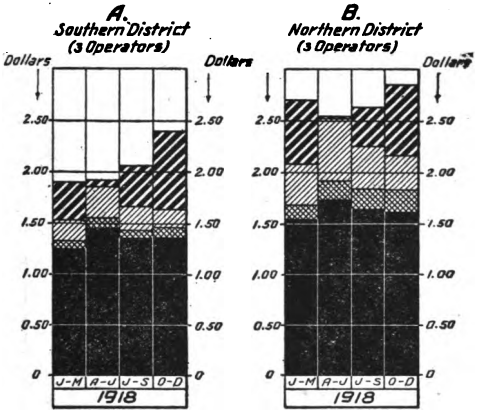
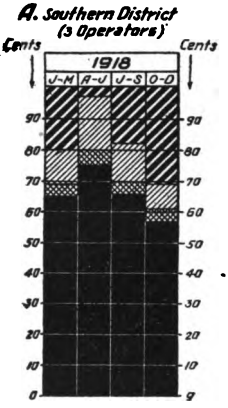


CHART 46.—Distribution of Amount paid by purchaser between the various principal Costs and the Margin, based on each dollar of Sales Realization, by quarters in 1918, in North Dakota.



Labor ■ Supplies ▒ Gen'l Expenses ▨ Margin ▨

TABLE 203.—*1918 quarterly and yearly revised costs and sales realization for 3 operators in southern district of the State of North Dakota, showing averages and range for 90 per cent and for 100 per cent of total output.*

Period.	Costs per net ton.												Sales realization per net ton.		
	Labor.			Supplies.			General expense.			Total f. o. b. mine.					
	Average.	Range. 90 per cent output.	Range. 100 per cent output.	Average.	Range. 90 per cent output.	Range. 100 per cent output.	Average.	Range. 90 per cent output.	Range. 100 per cent output.	Average.	Range. 90 per cent output.	Range. 100 per cent output.	Average.	Range. 90 per cent output.	Range. 100 per cent output.
January-March	$1.24	$0.98-$1.25	$0.98-$1.25	$0.08	$0.06-$0.07	$0.06-$0.30	$0.20	$0.02-$0.20	$0.02-$0.35	$1.52	$1.39-$1.52	$1.39-$1.52	$1.91	$1.91-$1.91	$1.91-$2.08
April-June	1.45	1.20- 1.48	1.20- 1.76	.10	.10- .11	.10- .30	.32	.01- .35	.01- 1.11	1.87	1.32- 1.93	1.32- 3.17	1.92	1.92- 1.92	1.92- 2.03
July-September	1.35	1.33- 1.34	1.33- 1.74	.08	.07- .08	.07- .10	.25	.01- .26	.01- .77	1.68	1.44- 1.68	1.44- 2.58	2.06	1.88- 2.07	1.88- 2.07
October-December	1.36	1.31- 1.36	1.31- 1.38	.10	.02- .09	.02- .22	.19	.02- .20	.02- .40	1.65	1.62- 1.65	1.62- 1.73	2.40	2.22- 2.41	2.22- 2.41
Year	1.33	1.28- 1.33	1.28- 1.33	.09	.08- .09	.08- .15	.23	.01- .23	.01- .53	1.65	1.44- 1.65	1.44- 1.94	2.10	2.09- 2.10	2.09- 2.10

TABLE 204.—*1918 quarterly and yearly revised costs and sales realization for 3 operators in northern district of the State of North Dakota, showing averages and range for 90 per cent and for 100 per cent of total output.*

Period.	Costs per net ton.												Sales realization per net ton.		
	Labor.			Supplies.			General expense.			Total f. o. b. mine.					
	Average.	Range. 90 per cent output.	Range. 100 per cent output.	Average.	Range. 90 per cent output.	Range. 100 per cent output.	Average.	Range. 90 per cent output.	Range. 100 per cent output.	Average.	Range. 90 per cent output.	Range. 100 per cent output.	Average.	Range. 90 per cent output.	Range. 100 per cent output.
January-March	$1.55	$1.39-$1.77	$1.39-$1.77	$0.14	$0.07-$0.28	$0.07-$0.28	$0.40	$0.34-$0.53	$0.34-$0.53	$2.09	$1.81-$2.29	$1.81 $2.29	$2.71	$2.31-$3.12	$2.31-$3.12
April-June	1.73	1.49- 1.91	1.49- 1.91	.16	.13- .31	.13- .31	.59	.47- 1.10	.47- 1.10	2.51	2.17- 2.98	2.17- 2.98	2.53	2.29- 3.05	2.29- 3.05
July-September	1.64	1.49- 1.69	1.49- 1.69	.22	.19- .25	.19- .25	.40	.37- .47	.37- .47	2.26	2.21- 2.29	2.21- 2.29	2.66	2.44- 3.00	2.44- 3.00
October-December	1.61	1.40- 1.77	1.40- 1.77	.24	.21- .28	.21- .28	.33	.20- .43	.20- .43	2.18	2.02- 2.43	2.02- 2.43	2.87	2.65- 3.22	2.65- 3.22
Year	1.62	1.46- 1.77	1.46- 1.77	.20	.15- .28	.15- .28	.41	.34- .52	.34- .52	2.23	2.02- 2.37	2.02- 2.37	2.72	2.43- 3.12	2.43- 3.12

The following table of yearly averages is given for the sake of ready comparison of the two districts:

TABLE 205.—*Average costs and sales realizations of all North Dakota operators for the year 1918.*

District.	Production.	Costs per ton.				Sales realization per ton.	Margin per ton.
		Labor.	Supplies.	General expense.	Total f. o. b. mine.		
	Tons.						
Southern	313,038	$1.33	$0.09	$0.23	$1.65	$2.10	$0.45
Northern	67,637	1.62	.20	.41	2.23	2.72	.49

The difference in the labor costs per ton between the two districts is chiefly due to the differences in thickness of seams mined, and to some extent also is attributable to differences in the mining methods followed. As will be noted from the following tabulation, about 76 per cent of the output of the Northern district came from seams averaging less than 9 feet thick, and all the output from seams averaging under 11 feet thick, while in the Southern district but 6 per cent came from seams averaging under 11 feet thick:

Thickness of seam.	Southern district.		Northern district.	
	Number of operators.	Proportion of output.	Number of operators.	Proportion of output.
		Per cent.		*Per cent.*
84 to 95 inches	.....	.....	1	32.8
96 to 107 inches	1	6.2	1	43.3
120 to 131 inches	.....	.....	1	23.9
132 to 143 inches	1	91.5	.....	.....
228 to 239 inches	1	2.3	.....	.....
Total	3	100.0	3	100.0

Detailed statistics are not available to show how far these differences are attributable to the greater use of machines in mining coal in one district as compared with another. The proportion of the total production mined by machine is stated by the United States Geological Survey to have been 38 per cent in 1917 for the State as a whole.[48]

5. *Relation of the costs to the sales realizations.*

The following table shows the distribution, by quarters and for the year 1918, between the items of labor, supplies, general expense, and margin of each dollar of sales realization received by the operator:

[48] Mineral Resources of the United States, 1917. Part II, p. 941.

TABLE 206.—*Distribution of the amount paid by the purchaser between the various principal costs and the margin, based on each dollar of sales realization, for the southern and the northern districts in North Dakota, 1918, by quarters and for the year.*

Period.	Costs.				Margin.
	Labor.	Supplies.	General expense.	Total f. o. b. mine.	
Southern district:	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*
January-March	65	4	11	80	20
April-June	75	5	17	97	3
July-September	66	4	12	82	18
October-December	57	4	8	69	31
Year	64	4	11	79	21
Northern district:					
January-March	57	5	15	77	23
April-June	68	8	23	99	1
July-September	62	8	15	85	15
October-December	56	8	12	76	24
Year	60	7	15	82	18

These facts are shown in graphic form in Chart 46 (facing p. 328).

6. Comparison of claimed and revised costs.

The foregoing tables present costs which have in some cases been revised by the accountants of the commission from the claimed figures reported on the original schedules by the operators.

The changes brought about through the revision in the average costs for the year 1918 for the six operators were as follows:

Item.	Claimed costs.	Revised costs.	Increase (I) or decrease (D) due to revision.
Southern district:			
Production (tons)	327,427	313,038	[1] 14,389 (D)
Labor ... per ton	$1.28	$1.33	$0.05 (I)
Supplies ... do	.11	.09	.02 (D)
General expense ... do	.29	.23	.06 (D)
Total f. o. b. mine ... do	1.68	1.65	.03 (D)
Northern district:			
Production (tons)	67,637	67,637	.....
Labor ... per ton	$1.62	$1.62	.....
Supplies ... do	.20	.20	.....
General expense ... do	.44	.41	$0.03 (D)
Total f. o. b. mine ... do	2.26	2.23	.03 (D)
State:			
Production (tons)	395,064	380,675	[1] 14,389 (D)
Labor ... per ton	$1.34	$1.39	$0.05 (I)
Supplies ... do	.13	.11	.02 (D)
General expense ... do	.31	.26	.05 (D)
Total f. o. b. mine ... do	1.78	1.76	.02 (D)

[1] Due to exclusion of power-house fuel.

The increase of 5 cents in the average State revised labor cost over the claimed was caused by the use of the revised production tonnage as a divisor. There was no revision of the total labor cost, the amount both revised and claimed being $527,814. The principal revision was in the item of general expense, resulting in a decrease of 5 cents per ton.

The costs claimed by some of the operators were obviously open to question as to their accuracy. Such operators were required by the commission to furnish further detailed information in support of their claimed costs. Examination of the data submitted by them revealed the fact that they had often included in their general expense excessive charges for depletion, depreciation, etc. Inflation of these costs resulted from the failure on the part of the operators to make their computations in accordance with the rules prescribed in the instructions of the commission.

Part III. Comparative costs and sales realizations, August, 1917–December, 1918.

1. Representativeness of statistics presented.

Representative figures were not obtained by the commission for costs and sales realizations prior to August, 1917, in the various North Dakota districts. Use has therefore been made of the monthly reports covering the last five months of 1917. The average total f. o. b. mine costs, sales realizations, and margins of about 54 per cent of the entire output mined in the districts are presented for these districts.

2. The revised costs, sales realizations, and production figures, and analyses of the fluctuations, by districts, August, 1917–December, 1918.

SOUTHERN DISTRICT.

The significance of the six periods selected for presenting the figures for August. 1917–December, 1918, for the Southern district is as follows:

August, 1917.—The greater part of this month was prior to the fixing by Executive order of August 21, 1917, of maximum prices for bituminous coal produced outside of North Dakota. No prices were fixed for the North Dakota production until early in 1918.

September–October, 1917.—This period followed the fixing elsewhere in the United States of maximum prices for the bituminous coal output, and the establishment of a fuel administration to regulate the fuel situation.

November–December, 1917.—This period followed the general 45-cent price increase allowed by Executive order in districts where

maximum prices had been established in consequence of the adoption of a new wage scale.

January–March, 1918.—Effective January 4, 1918, the Fuel Administration first established maximum prices for this district. The number of operators in the district from whom 1918 figures were obtained was much less than that from whom August–December, 1917, figures were available.

April–May, 1918.—This period was one of low production. Effective May 25, 1918, the Fuel Administration made a 10-cent reduction in the existing prices.

June–December, 1918.—Throughout this period the official maximum prices remained unchanged.

TABLE 207.—*Revised costs and sales realizations of operators in the Southern district of North Dakota, August, 1917–December, 1918.*

Period.	Number of operators.	Production.	Total f. o. b. mine cost per ton.	Sales realization per ton.	Margin per ton.
		Tons.			
August, 1917	11	25,961	$1.53	$1.93	$0.40
September–October, 1917	11	62,651	1.33	1.91	.58
November–December, 1917	11	99,395	1.36	1.98	.62
January–March, 1918	3	89,435	1.52	1.91	.39
April–May, 1918	3	32,173	1.90	1.87	[1].03
June–December, 1918	3	191,430	1.68	2.24	.56

[1] Amount by which the total f. o. b. mine cost exceeded the sales realization.

No maximum prices were fixed for the output of the North Dakota lignite mines by the Executive order of August 21, 1917. Inasmuch as practically all of the product was consumed within the State, and, furthermore, was but a fraction of the total coal consumed in North Dakota, it did not appear that price regulation at that time was necessary. At the beginning of 1918 it was found desirable to establish maximum prices.

The costs and sales realizations of the North Dakota output were indirectly affected by the conditions of price regulation placed on competing coal coming from other States. The grouping of the months prior to the establishing of maximum prices for the North Dakota product has accordingly been made so as to furnish some comparison with the figures for competing coal-producing districts.

The average total f. o. b. mine cost of the 11 operators for whom reports were obtained for August–December, 1917, for August, 1917, was $1.53 per ton; their sales realization, $1.93; and their margin, 40 cents per ton. For September–October, 1917, following the general establishment of maximum prices elsewhere in the country, their average f. o. b. mine cost was $1.33. Their average monthly output was 31,326 tons (an increase over August—25,961 tons), the sales

realization was $1.91 (a decrease of 2 cents from August), and their margin 58 cents per ton (an increase of 18 cents). For November-December, 1917, following the 45-cent price advance, because of the wage increase, made elsewhere in the country, their f. o. b. mine cost was $1.36. Their production increased to 49,698 tons per month. Their sales realization was $1.98 (an increase of 7 cents over September-October), and their margin 62 cents per ton (an increase of 4 cents).

Effective January 4, 1918, the Fuel Administration first established maximum prices for the district. The prices, including the November 1, 1917, price increase because of the wage increase, were as follows: Run of mine, $2.70; screened lump, $2.95; 6-inch steam lump, $2.45; screenings, $1.70. During January-March, 1918, the average total f. o. b. mine cost of the three operators from whom returns were received for the entire 12 months of 1918 was $1.52; their sales realization, $1.91; and their margin, 39 cents per ton. The average total f. o. b. mine cost of the three operators during April-May was $1.90 per ton—an increase of 38 cents from that of January-March. The average production in April-May was 16,082 tons—a marked decrease from that for January-March (29,811 tons). Their sales realization in April-May was $1.87 per ton (a decrease of 4 cents), and their f. o. b. mine cost exceeded their sales realization by 3 cents per ton (a net decrease of 42 cents from January-March).

Effective May 25, 1918, the Fuel Administration made a reduction of 10 cents per ton in the official maximum prices for the district. During the period, June-December, 1918, there was no change in the official maximum prices for this district. The three operators had an average f. o. b. mine cost of $1.68 per ton—a decrease of 22 cents per ton from April-May. Their production during the last seven months was higher than that of April-May—averaging 27,347 tons per month. Their average sales realization for June-December, 1918, was $2.24 per ton (an increase of 37 cents over April-May), and their margin was 56 cents per ton (a net increase of 59 cents).

NORTHERN DISTRICT.

The significance of the six periods selected for presenting the figures for August, 1917-December, 1918, for the Northern district, is as follows:

The first four periods (August, 1917; September-October, 1917; November-December, 1917; January-March, 1918) have been described under the Southern district (see p. 332).

April-May, 1918.—This period was one of low production. Effective May 24, 1918, the Fuel Administration made a change in the established maximum prices. Effective May 25, 1918, it made a 10-cent reduction in the existing prices.

June–December, 1918.—This period has been described under the Southern district.

TABLE 208.—*Revised costs and sales realizations of operators in the Northern district of North Dakota, August, 1917–December, 1918.*

Period.	Number of operators.	Production.	Total f. o. b. mine cost per ton.	Sales realization per ton.	Margin per ton.
		Tons.			
August, 1917	7	6,058	$2.37	$2.43	$0.06
September–October, 1917	7	14,559	2.37	2.74	.37
November–December, 1917	7	27,387	2.19	2.80	.61
January–March, 1918	3	20,041	2.09	2.71	.62
April–May, 1918	3	5,959	2.86	2.46	[1] .40
June–December, 1918	3	41,637	2.20	2.76	.56

[1] Amount by which total f. o. b. mine cost exceeded the sales realization.

No maximum prices were fixed for the output of the North Dakota lignite mines by the Executive order of August 21, 1917. Inasmuch as practically all of the product was consumed within the State, and, furthermore, was but a fraction of the total coal consumed in North Dakota, it did not appear that price regulation at that time was necessary. At the beginning of 1918 it was found desirable to establish maximum prices.

The costs and sales realizations of the North Dakota output were indirectly affected by the conditions of price regulation placed on competing coal coming from other States. The grouping of the months prior to the establishing of maximum prices for the North Dakota product has accordingly been made so as to furnish some comparison with the figures for competing coal-producing districts.

The average f. o. b. mine cost for August, 1917, of the seven operators from whom reports were obtained for August–December, 1917, was $2.37 per ton; their sales realization, $2.43; and their margin, 6 cents per ton. For September–October, 1917, following the general establishment of maximum prices elsewhere in the country, their average f. o. b. mine cost was $2.37. Their average monthly output was 7,279 tons (an increase over August—6,058 tons); the sales realization, $2.74 (an increase of 31 cents over August); and their margin, 37 cents per ton (an increase of 31 cents). For November–December, 1917, following the 45-cent price advance, because of the wage increase, made elsewhere in the country, their f. o. b. mine cost was $2.19 (a decrease of 18 cents from September–October). Their production increased to 13,694 tons per month. Their sales realization was $2.80 (an increase of 6 cents over September–October), and their margin 61 cents per ton (an increase of 24 cents).

Effective January 4, 1918, the Fuel Administration first established maximum prices for the district. The prices, including the

November 1, 1917, price increase because of the wage increase, were as follows: Run of mine, $2.70; screened lump, $2.95; 6-inch steam lump, $2.45; screenings, $1.70. During January–March, 1918, the average total f. o. b. mine cost of the three operators from whom returns were received for the entire 12 months of 1918, was $2.09; their sales realization, $2.71; and their margin, 62 cents per ton. The average total f. o. b. mine cost of the three operators during April–May was $2.86 per ton—an increase of 77 cents from that of January–March. The average production in April–May was 2,979 tons—a marked decrease from that for January–March (6,680 tons). Their sales realization in April–May was $2.46 per ton (a decrease of 25 cents), and their f. o. b. mine cost exceeded their sales realization by 40 cents per ton (a net decrease of $1.02 from January–March).

Effective May 24, 1918, the Fuel Administration made a change in the existing maximum prices for the district. The new prices, including the 45-cent price increase of November 1, 1917, because of the wage increase, were as follows: Run of mine, $3.15; prepared sizes, $3.45; 6-inch steam lump, $2.95; slack, or screened, $1.45. Effective May 25, 1918, the Fuel Administration made a reduction of 10 cents per ton in the official maximum prices for the district. During the period, June–December, 1918, there was no change in the official maximum prices for this district. The three operators had an average f. o. b. mine cost of $2.20 per ton—a decrease of 66 cents per ton from April–May. Their production during the last seven months was higher than that of April–May—averaging 5,948 tons per month. Their average sales realization for June–December, 1918, was $2.76 per ton (an increase of 30 cents over April–May), and their margin was 56 cents per ton (a net increase of 96 cents).

CHAPTER XV.—SUMMARY AND CONCLUSIONS.

Part I. Summary.

1. General comparisons of costs.

The average labor and total f. o. b. mine costs for 1918 varied widely between the 27 districts in the 13 trans-Mississippi principal coal-producing States, which are shown in this report. In the following statement the labor costs and the production of each district are shown for the purpose of ready comparison:

State and district.	1918		
	Production.	Costs per ton.	
		Labor.	Total, f. o. b. mine.
	Tons.		
Iowa:			
Marion-Monroe-Polk	5,544,180	$2.17	$2.68
Appanoose-Boone	1,826,786	2.48	3.00
Kansas:			
Cherokee-Crawford	6,280,374	2.00	2.55
Osage and Leavenworth (combined)	174,126	2.96	3.62
Missouri:			
No. 1	2,033,861	1.80	2.51
No. 2	2,044,226	2.39	2.92
Arkansas:			
Sebastain	1,433,539	2.14	2.68
Excelsior-Logan	67,458	3.47	4.45
Anthracite	100,055	3.23	3.98
Oklahoma:			
McAlester vein	688,986	3.11	3.92
Eastern	3,338,110	2.49	3.11
Texas:			
Bituminous	253,785	2.86	3.68
Lignite	806,278	.76	1.08
Colorado:			
Domestic	5,427,628	1.75	2.40
Trinidad	3,750,677	1.62	2.25
Lignite	2,194,860	1.49	2.10
New Mexico:			
Gallup and Sugarite (combined)	758,482	2.26	3.11
Carthage and Cerrillos (combined)	151,850	2.64	3.74
Raton	2,969,088	1.39	1.85
Montana: State	4,134,686	1.79	2.26
Wyoming: State	8,714,679	1.40	1.86
Utah: State	4,801,681	1.48	2.09
Washington:			
Kittitas, bituminous	1,661,772	1.90	2.37
Pierce-King, bituminous	1,001,975	2.75	3.71
Subbituminous	832,906	2.10	2.83
North Dakota:			
Southern	313,038	1.33	1.62
Northern	67,637	1.62	2.35

The following statement, derived from the figures shown above, shows the proportions of the total 61,372,723 tons, which were produced at various ranges of cost:

Cost per ton by 25-cent groupings.	Per cent of output produced at specified—		Cost per ton by 25-cent groupings.	Per cent of output produced at specified—	
	Labor costs.	Total, f. o. b. mine costs.		Labor costs.	Total, f. o. b. mine costs.
$0.75 to $0.99	1.3	.....	$3.00 to $3.24	1.3	9.7
$1.00 to $1.24	.....	1.3	$3.25 to $3.49	.1	.....
$1.25 to $1.49	30.9	.....	$3.50 to $3.74	.....	2.6
$1.50 to $1.74	6.2	.5	$3.75 to $3.99	.....	1.3
$1.75 to $1.99	21.7	19.0	$4.00 to $4.24	.....	.....
$2.00 to $2.24	22.9	11.5	$4.25 to $4.49	.....	.1
$2.25 to $2.49	13.0	24.5			
$2.50 to $2.74	.3	24.8	Total	100.0	100.0
$2.75 to $2.99	2.3	4.7			

The predominant cause of the differences in the labor and the total f. o. b. mine costs lies in the different thicknesses of seam mined, but many other causes, such as mining methods, strikes, or other forms of labor shortage, car shortage (see p. 39), also affected the various districts differently.

2. Increases in costs and sales realizations, 1916–1918.

The following statement shows a comparison of the average annual costs of 1916, 1917, and 1918 for 27 operators in four districts. These 27 operators in 1918 produced from 9 to 86 per cent of the tonnage of their respective districts.

Year.	Costs per ton.							
	Iowa.		Oklahoma.				Montana.	
	Marion-Monroe-Polk district.		McAlester Vein district.		Eastern district.			
	Labor.	Total f. o. b. mine.	Labor.	Total f. o. b. mine.	Labor.	Total f. o. b. mine.	Labor.	Total f. o. b. mine.
1916	[1] $1.49	[1] $1.85	$2.03	$2.72	$1.70	$2.14	$1.13	$1.48
1917	1.65	2.02	2.45	3.11	2.09	2.62	1.38	1.78
1918	2.07	2.62	3.10	3.93	2.60	3.16	1.73	2.19

[1] Average for April-December, 1916.

The labor costs in 1918 were from 39 to 53 per cent higher, and the total f. o. b. mine costs in 1918 were from 42 to 48 per cent higher than those in 1916.

A comparison of the average annual sales realization of the same 27 operators follows:

Year.	Sales realizations per ton.			
	Iowa.	Oklahoma.		Montana.
	Marion-Monroe-Polk district.	McAlester Vein district.	Eastern district.	
1916	[1] $1.98	$2.93	$2.11	$1.73
1917	2.35	3.60	2.60	2.24
1918	3.00	4.41	3.56	2.52

[1] Average for April–December, 1916.

The sales realizations for 1918 were from 46 to 69 per cent higher than those in 1916.

3. Effect of governmental price regulation on sales realization.

In some districts the effect of the establishment of the various governmental price regulations is more evident than in other districts.

In the following table there is shown for all the districts a comparison between the possible realization obtainable had the entire output been sold at the established maximum prices and the average sales realization actually received during the periods during which the established prices were in effect. The number of operators is that used in arriving at the average actual sales realization shown.

TABLE 209.—*Sales realizations.*

IOWA.

Date official maximum prices effective.	Sales realization at maximum prices (per ton).	Average sales realization actually received (per ton).	Period of actual sales realization.	Number of operators.	Sales tonnage.
Marion-Monroe-Polk district:					*Tons.*
Aug. 21, 1917	$2.80	$2.41	September–October, 1917	2	100,204
		2.40	do	3	125,318
		2.27	August–October, 1917	42	1,482,284
Nov. 1, 1917	3.25	2.92	November, 1917–March, 1918	2	268,749
		2.90	do	3	337,883
		2.82	November–December, 1917	42	1,057,695
		2.89	January–March, 1918	42	1,585,944
Mar. 11, 1918	[1]	3.03	April–May, 1918	2	71,504
Apr. 5, 1918	[2]	2.99	do	3	96,366
		2.86	April–June, 1918	42	1,228,780
May 25, 1918	3.15	3.05	June–December, 1918	2	278,129
		3.04	do	3	358,624
		2.98	July–September, 1918	42	1,405,297
		3.20	October–December, 1918	42	1,324,612
Apanoose-Boone district:					
Aug. 21, 1917	2.93	2.60	September, 1917	31	154,337
Oct. 1, 1917	3.38	2.92	October, 1917	31	199,236
Nov. 1, 1917	3.83	3.40	November–December, 1917	31	365,415
		3.38	January–February, 1918	27	397,783
Mar. 11, 1918	3.50	3.04	March, 1918	27	132,762
		3.28	April–May, 1918	27	214,650
May 25, 1918	3.40	3.33	June–December, 1918	27	1,084,748

[1] New maximum prices established for Marion County only.
[2] Prices for Marion County made same as for balance of this district.

TABLE 209.—*Sales realization*—Continued.

KANSAS.

Date official maximum prices effective.	Sales realization at maximum prices (per ton).	Average sales realization actually received (per ton).	Period of actual sales realization.	Number of operators.	Sales tonnage.
Cherokee-Crawford district:					
Aug. 21, 1917	$2.61	$2.44	September-October, 1917	41	972,911
Nov. 1, 1917	3.06	2.85	November-December, 1917	41	1,086,083
		2.84	January-March, 1918	38	1,585,369
		2.81	April, 1918	38	465,175
Apr. 20, 1918	3.21	2.87	May, 1918	38	553,894
May 25, 1918	3.11	2.94	June-December, 1918	38	3,631,947
Leavenworth district:					
Aug. 21, 1917	2.70	3.18	September-October, 1917	2	30,767
Nov. 1, 1917	3.15	3.80	November-December, 1917	2	33,516
		3.73	January-March, 1918	2	43,235
		3.80	April, 1918	2	12,805
Apr. 20, 1918	3.50	3.76	May, 1918	2	14,449
May 25, 1918	3.40	3.86	June-December, 1918	2	93,490

MISSOURI.

Date official maximum prices effective.	Sales realization at maximum prices (per ton).	Average sales realization actually received (per ton).	Period of actual sales realization.	Number of operators.	Sales tonnage.
District No. 1:					
Aug. 21, 1917	$2.83	$2.51	September-October, 1917	27	411,792
Nov. 1, 1917	3.28	2.97	November-December, 1917	27	465,627
		2.91	January-March, 1918	24	532,971
		2.84	April-May, 1918	24	338,257
May 25, 1918	3.18	2.96	June-December, 1918	24	1,163,054
District No. 2:					
Aug. 21, 1917	2.86	2.38	September, 1917	19	154,986
Oct. 1, 1917	[3] 3.31	2.62	October, 1917	19	197,911
Oct. 27, 1917		3.04	November-December, 1917	19	392,900
Nov. 1, 1917	3.31	3.08	January-March, 1918	20	568,778
	[3] 3.76	2.93	April, 1918	20	149,577
Apr. 20, 1918	3.71	3.08	May, 1918	20	170,206
May 25, 1918	3.61	3.36	June-December, 1918	20	1,164,357

ARKANSAS.

Date official maximum prices effective.	Sales realization at maximum prices (per ton).	Average sales realization actually received (per ton).	Period of actual sales realization.	Number of operators.	Sales tonnage.
Sebastian district.					
Aug. 21, 1917	$2.67	2.34	September, 1917	15	83,956
Oct. 1, 1917	3.03	2.50	October, 1917	15	75,293
Nov. 1, 1917	3.48	2.97	November-December, 1917	15	198,539
		2.87	January-March, 1918	16	386,752
Mar. 29, 1918	3.64	2.94	April, 1918	16	107,702
May 1, 1918	3.77	3.04	May, 1918	16	132,101
May 25, 1918	3.67	3.09	June, 1918	16	114,569
June 1, 1918	3.80				
July 1, 1918	3.93	3.16	July, 1918	16	140,785
Aug. 1, 1918	4.06	3.74	August-December, 1918	16	554,787
Excelsior-Logan district:					
Aug. 21, 1917	2.77	3.55	September-October, 1917	7	10,911
Oct. 27, 1917	([4])	4.28	November-December, 1917	7	11,855
Nov. 1, 1917	3.22	4.36	January-March, 1918	5	16,290
Mar. 29, 1918	4.51	4.47	April, 1918	5	4,350
May 1, 1918	4.62	4.55	May, 1918	5	5,949
May 25, 1918	4.52	4.54	June, 1918	5	6,054
June 1, 1918	4.64				
July 1, 1918	4.76	4.50	July, 1918	5	6,319
Aug. 1, 1918	4.88	4.79	August-December, 1918	5	28,508
Anthracite:					
Jan. 5, 1918	([5])	4.02	January-March, 1918	4	26,537
May 15, 1918	([5])	3.31	April, 1918	4	2,665
		3.34	May, 1918	4	2,953
		4.20	June, 1918	4	8,232
July 10, 1918	([6])	4.67	July, 1918	4	14,750
		5.58	August, 1918	4	12,650
		5.25	September, 1918	4	11,949
		5.15	October-December, 1918	4	19,871

[3] Prices which affected about 66 per cent of the tonnage produced by the operators listed.
[4] New prices established for part of district.
[5] Prices established for several different sizes.
[6] Prices established were subject on a part of the output sold to different monthly reductions from April to September, inclusive.

TABLE 209.—*Sales realization*—Continued.

OKLAHOMA.

Date official maximum prices effective.	Sales realization at maximum prices (per ton).	Average sales realization actually received (per ton).	Period of actual sales realization.	Number of operators.	Sales tonnage.
McAlester Vein district:					*Tons.*
Aug. 21, 1917	$3.16	$2.86	September, 1917	6	45,483
		3.36	August-October, 1917	8	162,863
Oct. 1, 1917	3.76	3.44	October, 1917	6	46,581
Nov. 1, 1917	4.21	3.85	November, 1917	6	49,853
		3.85	do	8	64,043
		4.12	December, 1917	8	60,053
Nov. 30, 1917	4.46	4.30	December, 1917-March, 1918	6	192,048
		4.35	January-March, 1918	8	171,791
Mar. 29, 1918	4.37	4.25	April, 1918	6	49,835
Apr. 1, 1918	4.49				
May 1, 1918	4.62	4.16	May, 1918	6	57,249
		4.22	April-June, 1918	8	183,554
May 25, 1918	4.52	4.24	June, 1918	6	50,095
June 1, 1918	4.64				
July 1, 1918	4.77	4.38	July, 1918	6	59,250
		4.50	July-September, 1918	8	189,500
Aug. 1, 1918	4.89	4.58	August-December, 1918	6	230,992
		4.64	October-December, 1918	8	140,705
Eastern district:					
Aug. 21, 1917	3.08	2.49	September, 1917	9	63,704
		2.77	August-October, 1917	38	832,900
Oct. 1, 1917	(7)	2.63	October, 1917	9	91,197
Nov. 1, 1917	3.53	3.02	November, 1917	9	72,467
		3.23	do	38	288,633
		3.43	December, 1917	38	286,705
Dec. 1, 1917	3.78	3.39	December, 1917-March, 1918	9	426,521
		3.33	January-March, 1918	35	905,426
Mar. 29, 1918	3.52	3.20	April, 1918	9	109,041
Apr. 1, 1918	3.66				
May 1, 1918	3.80	3.44	May, 1918	9	123,923
		3.33	April-June, 1918	35	841,328
May 25, 1918	3.70	3.46	June, 1918	9	100,191
June 1, 1918	3.84				
July 1, 1918	3.98	3.54	July, 1918	9	111,112
Aug. 1, 1918	4.12	3.81	August-December, 1918	9	498,848
		3.61	July-September, 1918	35	887,345
		3.87	October-December, 1918	35	693,274

TEXAS.

Bituminous district:					*Tons.*
Aug. 21, 1917	$2.89	$3.12	September-October, 1917	6	72,498
Nov. 1, 1917	3.34	3.63	November, 1917	6	42,876
Nov. 16, 1917	(8)	3.78	December, 1917	6	39,417
		3.76	January-March, 1918	4	67,873
Apr. 1, 1918	(9)	3.70	April, 1918	4	16,915
		3.60	May, 1918	4	17,475
May 25, 1918	(10)	4.15	June, 1918	4	20,097
June 22, 1918	(10)	3.97	July, 1918	4	26,997
Aug. 13, 1918	(8)	3.98	August, 1918	4	23,526
Sept. 4, 1918	(11)	4.69	September-October, 1918	4	80,995
Lignite district:					
Aug. 21, 1917	2.72	0.97	September-October, 1917	20	176,137
Nov. 1, 1917	3.17	1.06	November-December, 1917	20	173,932
		1.19	January-February, 1918	14	148,415
Mar. 5, 1918	1.85	1.18	March, 1918	14	55,585
		1.18	April-May, 1918	14	117,901
May 25, 1918	1.75	1.25	June, 1918	14	63,184
June 22, 1918	2.03	1.51	July-December, 1918	14	420,903

[7] Prices established for 3 separate sets of operators.
[8] New prices established for part of district.
[9] Prices established were subject to different monthly summer discounts, April-December, inclusive.
[10] Decrease of 10 cents per ton made in existing prices.
[11] Prices established for two sets of operators in the district.

181197°—21——25+26

TABLE 209.—*Sales realization*—Continued.

COLORADO.

Date official maximum prices effective.	Sales realization at maximum prices (per ton).	Average sales realization actually received (per ton).	Period of actual sales realization.	Number of operators.	Sales tonnage.
Domestic district:					
Aug. 21, 1917	$2.53	$2.24	September, 1917	52	463,334
Oct. 1, 1917	3.22	2.72	October, 1917	52	446,246
Nov. 1, 1917	3.67	3.12	November–December, 1917	52	878,728
		3.19	January–February, 1918	40	854,149
Mar. 11, 1918	3.15	2.84	March, 1918	40	430,521
Apr. 1, 1918	2.78	2.64	April, 1918	40	404,517
May 1, 1918	2.89	2.78	May, 1918	40	507,633
May 25, 1918	2.79	2.83	June, 1918	40	486,793
June 1, 1918	2.87				
July 1, 1918	2.97	2.93	July, 1918	40	505,203
Aug. 1, 1918	3.05	3.03	August–December, 1918	40	2,162,011
Trinidad district:					
Aug. 21, 1917	2.42	2.09	September, 1917	14	153,802
Oct. 1, 1917	2.61	2.16	October, 1917	14	164,884
Nov. 1, 1917	3.06	2.61	November–December, 1917	14	303,218
		2.59	January–February, 1918	13	357,222
Mar. 11, 1918	2.76	2.44	March, 1918	13	179,450
Apr. 1, 1918	2.68	2.47	April, 1918	13	175,099
May 1, 1918	2.70	2.47	May, 1918	13	170,721
May 25, 1918	2.60	2.46	June, 1918	13	173,346
June 1, 1918	2.62				
July 1, 1918	2.64	2.39	July, 1918	13	226,449
Aug. 1, 1918	2.66	2.50	August–December, 1918	13	1,238,416
Lignite district:					
Aug. 21, 1917	2.51	1.95	September, 1917	17	164,900
Oct. 1, 1917	2.60	2.10	October, 1917	17	223,945
Nov. 1, 1917	3.05	2.56	November, 1917	17	242,250
Nov. 22, 1917	3.10	2.68	December, 1917	17	292,578
		2.66	January–February, 1918	15	535,665
Mar. 11, 1918	2.87	2.38	March, 1918	15	136,138
		2.37	April–May, 1918	15	283,401
May 25, 1918	2.77	2.40	June–December, 1918	15	1,239,135

NEW MEXICO.

Date official maximum prices effective.	Sales realization at maximum prices (per ton).	Average sales realization actually received (per ton).	Period of actual sales realization.	Number of operators.	Sales tonnage.
Gallup district:					
Aug. 21, 1917	$2.53	$2.44	September–October, 1917	4	83,620
Nov. 1, 1917	2.98	2.67	November, 1917	4	52,951
Nov. 26, 1917	4.32	3.05	December, 1917	4	55,822
		3.01	January–March, 1918	4	171,384
Apr. 1, 1918	3.65	2.83	April, 1918	4	55,035
May 1, 1918	3.72	2.96	May, 1918	4	59,428
May 25, 1918	3.62	2.98	June, 1918	4	64,740
June 1, 1918	3.69				
July 1, 1918	3.76	3.56	July, 1918	4	66,139
Aug. 1, 1918	3.83	3.65	August, 1918	4	67,758
Sept. 1, 1918	3.90	3.69	September–December, 1918	4	223,228
Carthage and Cerrillos districts (combined):					
Aug. 21, 1917	2.43	3.64	September–October, 1917	3	19,964
Nov. 1, 1917	2.88	3.69	November, 1917	3	10,462
Nov. 26, 1917	4.69	4.07	December, 1917	3	13,137
		4.19	January–March, 1918	4	44,231
Apr. 1, 1918	(12)	4.11	April, 1918	4	12,107
			May, 1918	4	11,853
May 25, 1918	(13)	4.01	June, 1918	4	12,233
		3.98	July, 1918	4	11,859
		4.15	August, 1918	4	13,186
Aug. 30, 1918	(14)	4.35	September–December, 1918	4	48,130
Raton district:					
Aug. 21, 1917	$2.41	$2.11	September–October, 1917	2	310,377
Oct. 28, 1917	2.68	2.59	November–December, 1917	2	340,306
Nov. 1, 1917	3.13	2.60	January–March, 1918	2	501,511
Apr. 1, 1918	2.70	2.52	April, 1918	2	159,680
May 1, 1918	2.75	2.63	May, 1918	2	167,748
May 25, 1918	2.65	2.77	June, 1918	2	154,849
June 1, 1918	2.69				
July 1, 1918	2.74	2.98	July, 1918	2	154,080
Aug. 1, 1918	2.78	3.10	August, 1918	2	161,203
Sept. 1, 1918	2.83	3.10	September–December, 1918	2	562,961

[12] Separate prices established for Carthage and Cerrillos districts. Both sets of prices were subject to graduated summer discounts from April–August, inclusive.
[13] A reduction of 10 cents was made in the established prices.
[14] A change was made in the established prices for Cerrillos district.

TABLE 209.—*Sales realization*—Continued.

MONTANA.

Date official maximum prices effective.	Sales realization at maximum prices (per ton).	Average sales realization actually received (per ton).	Period of actual sales realization.	Number of operators.	Sales tonnage.
Aug. 21, 1917	$2.79	$2.32	September–October, 1917	10	321,045
		2.23	do	12	472,118
		2.20	August–October, 1917	19	894,263
		2.70	November, 1917	19	300,648
Oct. 27, 1917	2.99	2.76	December, 1917	19	809,345
Nov. 1, 1917	3.44	2.60	November, 1917–February, 1918	10	806,948
		2.56	do	12	1,184,644
		2.54	January–March, 1918	17	1,050,363
		2.36	March, 1918	10	179,971
Mar. 1, 1918	3.28	2.37	do	12	267,174
		2.26	April, 1918	10	169,542
		2.28	do	12	254,607
		2.41	May, 1918	10	196,942
May 1, 1918	3.38	2.38	do	12	291,460
		2.47	April–June, 1918	17	955,451
		2.57	June–December, 1918	10	1,431,016
May 25, 1918	3.28	2.54	do	12	2,009,641
		2.59	July–September, 1918	17	1,093,589
		2.61	October–December, 1918	17	1,035,178

WYOMING.

Aug. 21, 1917	$2.56	$1.93	September, 1917	19	593,748
Oct. 1, 1917	2.70	2.06	October, 1917	19	701,779
Nov. 1, 1917	3.15	2.46	November–December, 1917	19	1,712,064
		2.38	January–February, 1918	18	1,740,138
Mar. 11, 1918	3.20	2.13	March, 1918	18	625,008
Mar. 23, 1918	(15)	2.23	April–May, 1918	18	1,302,200
May 25, 1918	3.10	2.50	June–December, 1918	18	5,040,575

UTAH.

Aug. 21, 1917	$2.61	$2.29	September–October, 1917	8	499,328
Nov. 1, 1917	3.06	2.67	November–December, 1917	8	652,046
		2.68	January–February, 1918	11	693,160
Mar. 11, 1918	2.96	2.53	March, 1918	11	278,619
		2.63	April–May, 1918	11	636,567
May 25, 1918	2.86	2.88	June–December, 1918	11	2,456,379

WASHINGTON.

Kittitas Bituminous district:					
Aug. 21, 1917	$3.24	$2.64	September–October, 1917	5	287,728
Nov. 1, 1917	3.69	2.96	November–December, 1917	5	304,310
		3.08	January–March, 1918	5	419,927
Mar. 29, 1918	(16)	3.13	April–May, 1918	5	285,715
May 25, 1918	(17)	3.06	June–December, 1918	5	956,128
Pierce-King Bituminous district:					
Aug. 21, 1917	3.45	3.31	September, 1917	10	126,464
Oct. 1, 1917	4.30	3.66	October, 1917	10	135,990
Nov. 1, 1917	4.75	3.85	November–December, 1917	10	263,624
		4.29	January–March, 1918	9	225,821
Mar. 29, 1918	(18)	4.28	April–May, 1918	9	134,061
May 25, 1918	(17)	4.42	June–December, 1918	9	525,608
Subbituminous district:					
Aug. 21, 1917	3.36	2.32	September, 1917	5	30,420
Oct. 1, 1917	(19)	2.35	October, 1917	5	42,380
Nov. 1, 1917	(19)	2.59	November–December, 1917	5	88,245
		3.37	January–March, 1918	7	228,097
Mar. 29, 1918	(16)	3.14	April–May, 1918	7	121,457
May 25, 1918	(17)	3.20	June–December, 1918	7	475,270

[15] New prices established for part of output only.
[16] Prices established for certain special sizes.
[17] A 10-cent reduction was made in existing prices.
[18] New prices established for part of district.
[19] A 45-cent increase was allowed in existing prices.

TABLE 209.—*Sales realization*—Continued.

NORTH DAKOTA.

Date official maximum prices effective.	Sales realization at maximum prices (per ton).	Average sales realization actually received (per ton).	Period of actual sales realization.	Number of operators.	Sales tonnage.
Southern district:					
Jan. 4, 1918	(20)	$1.91	January–March, 1918	2	89,697
		1.87	April–May, 1918	2	27,994
May 25, 1918	(21)	2.24	June–December, 1918	2	178,772
Northern district:					
Jan. 4, 1918	(20)	2.71	January–March, 1918	3	20,041
		2.46	April–May, 1918	3	5,959
May 24, 1918	(20)	2.76	June–December, 1918	3	41,557
May 25, 1918	(21)				

[20] Prices were established for special sizes of prepared coal, as well as run-of-mine and slack.
[21] A 10-cent reduction was made in existing prices.

The differences between the maximum possible realization based on established prices and the average sales realizations actually obtained by the operators are probably due to a variety of causes, such as the proportions of the output during any period sold under relatively high or low priced contracts, the character of the demand in the market reached by the coal from a particular district, etc.

4. *Effect of margins on production.*

In but four out of the 27 districts shown in this report was it possible to secure figures prior to August, 1917. The following statement is based on the records of two operators in Iowa, 15 in Oklahoma, and 10 in Montana. It shows the average monthly tonnage by districts, together with the margins, during 1917 and 1918, by three periods: (1) The eight months (January–August, 1917) preceding any governmental price control over output; (2) the seven months (September, 1917–March, 1918) during which there was governmental price control over part of the output; and (3) the nine months (April–December, 1918) during which there was governmental control over practically the entire output:

State and district.	January–August, 1917.		September, 1917–March, 1918.		April–December, 1918.	
	Average monthly output.	Margin per ton.	Average monthly output.	Margin per ton.	Average monthly output.	Margin per ton.
	Tons.		*Tons.*		*Tons.*	
Iowa: Marion-Monroe-Polk	51,124	$0.26	52,708	$0.43	38,848	$0.3
Oklahoma:						
McAlester Vein	41,717	.68	48,109	.30	49,677	.47
Eastern	98,084	.04	101,977	.21	105,157	.37
Montana	166,843	.45	195,982	.44	199.718	.31

The foregoing facts indicate clearly that the margin is but one of several factors which may stimulate or retard production. Production was also influenced by such conditions as strikes or other forms of labor shortage, transportation facilities, and the demand for coal in the markets available to the mines, etc. Explanations for the rise or fall of production are to be found in the particular conditions which existed during each period in each district.

Part II. Conclusions.

In conclusion, it is desirable to point out the diverse conditions which have existed during the past three years between the different coal-producing districts in the 13 trans-Mississippi States. In some districts the margins allowed to the operators during the periods of partial or complete governmental control over the output, while substantially higher than those obtained by the operators themselves prior to any governmental regulation of prices, were accompanied by a decrease of output, while in other districts margins substantially lower than those obtained prior to governmental regulation were accompanied by an increase in output. The explanation of such different results must be sought in the particular conditions which have existed in each producing district. There is great danger in applying widely some of the generalizations drawn from the experience of particular districts or States. The collecting of definite up-to-date information, covering the whole industry and making it readily available for use, is, therefore, highly desirable.

APPENDIX.

LIST OF APPENDIX TABLES.

IOWA.

KANSAS.

ARKANSAS.

OKLAHOMA.

MONTANA.

WYOMING.

UTAH.

WASHINGTON.

TABLE 1.—*Total revised labor cost, by quarterly and yearly periods for 1918, for 42 operators producing bituminous coal in Marion-Monroe-Polk district of the State of Iowa.*

Per ton cost by $0.10 groupings.	January–March, 1918, inclusive.				April–June, 1918, inclusive.				July–September, 1918, inclusive.				October–December, 1918, inclusive.				Year, 1918.			
	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$1.60–$1.69	80,071	5.1	5.1	2									10,554	0.8	0.8	1				
1.70– 1.79	238,984	15.1	20.2	3	26,120	2.1	2.1	2	165,853	11.9	11.9	3	11,906	.9	1.7	1	301,506	5.4	5.4	2
1.80– 1.89	203,997	12.9	33.1	6	46,118	3.8	5.9	1					149,888	11.2	12.9	3	293,436	5.3	10.7	1
1.90– 1.99	171,977	10.9	44.0	4	304,444	24.8	30.7	4	174,706	12.4	24.3	3	194,740	14.7	27.6	4	494,585	8.9	19.6	3
2.00– 2.09	257,512	16.1	60.1	7	60,835	5.0	35.7	2	38,983	2.8	27.1	3	52,456	4.0	31.6	1	1,123,859	20.4	40.0	5
2.10– 2.19	305,660	19.3	79.4	7	252,642	20.5	56.2	5	218,583	15.5	42.6	6	74,437	5.6	37.2	2	1,173,276	21.1	61.1	6
2.20– 2.29	97,999	6.1	85.5	4	130,027	10.5	66.7	5	371,623	26.5	69.1	4	186,821	14.1	51.3	7	651,172	11.7	72.8	6
2.30– 2.39	46,755	2.9	88.4	2	122,648	10.0	76.7	6	190,622	13.7	82.8	7	381,319	28.9	80.2	7	612,678	11.1	83.9	7
2.40– 2.49	130,486	8.3	96.7	5	86,585	7.0	83.7	3	54,862	3.9	86.7	3	5,485	.4	80.6	1	396,608	7.1	91.0	4
2.50– 2.59					90,818	7.4	91.1	4					111,944	8.5	89.1	6	171,835	3.1	94.1	3
2.60– 2.69	52,078	3.3	100.0	2	47,520	3.8	94.9	3	44,977	3.2	89.9	2	103,066	7.8	96.9	5	224,153	4.1	98.2	4
2.70– 2.79					27,647	2.2	97.1	1					6,034	.4	97.3	1				
2.80– 2.89					12,356	1.0	98.1	2	60,337	4.3	94.2	3	4,935	.4	97.7	1				
2.90– 2.99					8,556	.7	98.8	1	10,211	.7	94.9	1					101,072	1.8	100.0	1
3.00– 3.09					10,044	.8	99.6	1	23,593	1.7	96.6	2								
3.10– 3.19									12,563	.9	97.5	1	31,406	2.3	100.0	2				
3.20– 3.29					1,729	.1	99.7	1												
3.30– 3.39									4,383	.3	97.8	1								
3.40– 3.49									8,424	.6	98.4	1								
3.50– 3.59																				
3.60– 3.69									7,406	.5	98.9	1								
3.70– 3.79					3,045	.3	100.0	1	15,410	1.1	100.0	1								
Total	1,585,519	100.0	100.0	42	1,231,134	100.0	100.0	42	1,402,536	100.0	100.0	42	1,324,991	100.0	100.0	42	5,544,180	100.0	100.0	42
Average cost per ton	$2.03				$2.21				$2.24				$2.24				$2.17			

TABLE 2.—*Total revised supply cost, by quarterly and yearly periods for 1918, for 42 operators producing bituminous coal in Marion-Monroe-Polk district of the State of Iowa.*

Per ton cost by $0.10 groupings.	January–March, 1918, inclusive.				April–June, 1918, inclusive.				July–September, 1918, inclusive.				October–December, 1918, inclusive.				Year, 1918.			
	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$0.00–$0.09	126,956	8.0	8.0	5	53,871	4.4	4.4	4	48,853	3.5	3.5	3	30,900	2.3	2.3	2	194,806	3.6	3.6	3
.10– .19	964,040	60.8	68.8	20	379,900	30.9	35.3	9	693,826	49.4	52.9	12	384,040	28.9	31.2	9	3,123,558	56.3	59.9	16
.20– .29	297,370	18.8	87.6	10	574,548	46.7	82.0	15	446,094	31.9	84.8	15	597,692	45.1	76.3	17	1,268,269	22.9	82.8	12
.30– .39	178,895	11.2	98.8	6	143,722	11.7	93.7	7	134,881	9.6	94.4	7	267,201	20.3	96.6	11	761,253	13.6	96.4	8
.40– .49					58,110	4.6	98.3	5	21,435	1.5	95.9	1	16,242	1.2	97.8	1	147,425	2.7	99.1	2
.50– .50	18,258	1.2	100.0	1					12,563	.9	96.8	1	28,916	2.2	100.0	2	48,869	.9	100.0	1
.60– .69					12,403	1.0	99.3	1	36,460	2.6	99.4	2								
.70– .79																				
.80– .89					8,580	.7	100.0	1												
.90– .99									8,424	.6	100.0	1								
Total	1,585,519	100.0	100.0	42	1,231,134	100.0	100.0	42	1,402,536	100.0	100.0	42	1,324,991	100.0	100.0	42	5,544,180	100.0	100.0	42
Average cost per ton	$0.18				$0.23				$0.21				$0.24				$0.22			

TABLE 3.—*Total revised general expenses, by quarterly and yearly periods for 1918, for 42 operators producing bituminous coal in Marion-Monroe-Polk district of the State of Iowa.*

Per ton cost by $0.10 groupings.	January-March, 1918, inclusive.				April-June, 1918, inclusive.				July-September, 1918, inclusive.				October-December, 1918, inclusive.				Year, 1918.			
	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$0.10-$0.19	173,992	11.0	11.0	5	27,008	2.2	2.2	1	228,493	16.3	16.3	4	78,843	5.9	5.9	1	293,436	5.3	5.3	1
.20- .29	1,055,009	66.6	77.6	22	732,790	59.5	61.7	15	698,094	49.7	66.0	15	519,042	39.1	45.0	12	3,280,737	59.1	64.4	18
.30- .39	261,894	16.4	94.0	8	229,108	18.6	80.3	10	287,142	20.6	86.6	9	568,586	43.1	88.1	18	1,352,070	24.4	88.8	12
.40- .49	72,645	4.6	98.6	5	180,706	14.7	95.0	8	148,144	10.5	97.1	9	124,508	9.4	97.5	7	440,714	8.1	96.9	6
.50- .59					34,555	2.8	97.8	2	8,424	.6	97.7	1	27,978	2.1	99.6	3	148,320	2.6	99.5	4
.60- .69					12,356	1.0	98.8	2	15,293	1.1	98.8	2								
.70- .79	3,721	.2	98.8	1	1,281	.1	98.9	1	12,563	.9	99.7	1	6,034	.4	100.0	1	28,903	.5	100.0	1
.80- .89	18,258	1.2	100.0	1	10,285	.8	99.7	2												
.90- .99									4,383	.3	100.0	1								
1.50- 1.59					3,045	.3	100.0	1												
Total	1,585,519	100.0	100.0	42	1,231,134	100.0	100.0	42	1,402,536	100.0	100.0	42	1,324,991	100.0	100.0	42	5,544,180	100.0	100.0	42
Average cost per ton	$0.27				$0.30				$0.28				$0.32				$0.29			

TABLE 4.—*Total revised f. o. b. mine cost, by quarterly and yearly periods for 1918, for 42 operators producing bituminous coal in Marion-Monroe-Polk district of the State of Iowa.*

Per ton cost by $0.10 groupings.	January-March, 1918, inclusive.				April-June, 1918, inclusive.				July-September, 1918, inclusive.				October-December, 1918, inclusive.				Year, 1918.			
	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$1.90-$1.99	64,630	4.1	4.1	1																
2.00- 2.09	21,626	1.4	5.5	1					86,191	6.2	6.2	1								
2.10- 2.19	265,710	16.8	22.3	4	13,717	1.1	1.1	1					101,303	7.6	7.6	3	352,659	6.4	6.4	2
2.20- 2.29	228,046	14.4	36.7	5	63,772	5.2	6.3	1	130,694	9.3	15.5	3								
2.30- 2.39					113,336	9.3	15.6	3	123,674	8.8	24.3	2					727,330	13.0	19.4	3
2.40- 2.49	470,246	29.6	66.3	10	173,454	14.1	29.7	1					145,938	11.0	18.6	2	743,405	13.4	32.8	2
2.50- 2.59	42,736	2.7	69.0	2	205,146	16.7	46.4	3	321,278	22.8	47.1	6	190,062	14.2	32.8	6	539,956	9.8	42.6	4
2.60- 2.69	89,877	5.6	74.6	3	112,682	9.2	55.6	5	256,865	18.3	65.4	5	77,202	5.9	38.7	2	1,124,404	20.3	62.9	7
2.70- 2.79	84,661	5.3	79.9	4	114,131	9.2	64.8	4	66,548	4.8	70.2	3	187,185	14.1	52.8	2	183,663	3.3	66.2	2
2.80- 2.89	138,975	8.7	88.6	4	50,365	4.1	68.9	2	74,222	5.3	75.5	2	243,885	18.5	71.3	6	557,146	10.0	76.2	5
2.90- 2.99	80,531	5.2	93.8	3	37,534	3.0	71.9	2	67,544	4.9	80.4	3	86,727	6.6	77.9	4	509,637	9.3	85.5	5
3.00- 3.09	61,810	3.9	97.7	2	118,397	9.6	81.5	5	30,217	2.2	82.6	2	14,098	1.1	79.0	2	54,624	1.0	86.5	1
3.10- 3.19	3,721	.2	97.9	1	96,972	7.9	89.4	4	65,109	4.6	87.2	3	111,531	8.5	87.5	5	163,028	2.9	89.4	1
3.20- 3.29	32,950	2.1	100.0	2	14,600	1.2	90.6	1	37,867	2.7	89.9	1	47,733	3.6	91.1	3	309,426	5.6	95.0	5
3.30- 3.39					50,029	4.0	94.6	2					36,729	2.8	93.9	1				
3.40- 3.49					22,152	1.8	96.4	1	26,152	1.9	91.8	1	23,981	1.8	95.7	1	128,961	2.3	97.3	3
3.50- 3.59					9,117	.7	97.1	1									101,072	1.8	99.1	1
3.60- 3.69									12,750	.9	92.7	1	22,276	1.6	97.3	2	48,869	.9	100.0	1
3.70- 3.79					3,776	.3	97.4	1	31,646	2.2	94.9	2								
3.80- 3.89													4,935	.4	97.7	1				
3.90- 3.99					10,044	.8	98.2	1					31,406	2.3	100.0	2				
4.00- 4.09									23,593	1.7	96.6	2								
4.10- 4.19																				
4.20- 4.29					8,556	.7	98.9	1												
4.30- 4.39					8,580	.7	99.6	1	19,969	1.4	98.0	2								
4.40- 4.49																				
4.50- 4.59					1,729	.1	99.7	1												
4.60- 4.69									4,383	.3	98.3	1								
4.70- 4.79																				

TABLE 4.—*Total revised f. o. b. mine cost, by quarterly and yearly periods for 1918, for 42 operators producing bituminous coal in Marion-Monroe-Polk district of the State of Iowa*—Continued.

Per ton cost by $0.10 groupings.	January-March, 1918, inclusive.				April-June, 1918, inclusive.				July-September, 1918, inclusive.				October-December, 1918, inclusive.				Year, 1918.			
	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by .0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$4.80- 4.89									15,410	1.1	99.4	1								
4.90- 4.99									8,424	.6	100.0	1								
5.40- 5.49					3,045	.3	100.0	1												
Total	1,585,519	100.0	100.0	42	1,231,134	100.0	100.0	42	1,402,536	100.0	100.0	42	1,324,991	100.0	100.0	42	5,544,180	100.0	100.0	42
Average cost per ton	$2.48				$2.74				$2.73				$2.80				$2.68			

TABLE 5.—*Total sales realization, by quarterly and yearly periods for 1918, for 42 operators producing bituminous coal in Marion-Monroe-Polk district of the State of Iowa.*

Per ton by $0.10 groupings.	January–March, 1918, inclusive.				April–June, 1918, inclusive.				July–September, 1918, inclusive.				October–December, 1918, inclusive.				Year, 1918.			
	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$2.30–$2.39					173,454	14.1	14.1	1	164,064	11.7	11.7	1								
2.40– 2.49	156,889	9.9	9.9	1					21,050	1.5	13.2	1	5,117	0.4	0.4	1				
2.50– 2.59	153,964	9.8	19.7	2	160,219	13.1	27.2	4					23,981	1.8	2.2	1				
2.60– 2.69	253,555	16.0	35.7	7	182,054	14.8	42.0	6	21,377	1.5	14.7	1					18,468	0.3	0.3	1
2.70– 2.79	170,378	10.8	46.5	5	52,608	4.2	46.2	2	31,516	2.2	16.9	2					1,239,620	22.4	22.7	3
2.80– 2.89	277,588	17.5	64.0	6	102,856	8.3	54.5	3	145,776	10.4	27.3	2	20,524	1.5	3.7	1	1,165,761	21.0	43.7	10
2.90– 2.99	209,665	13.1	77.1	6	108,972	8.9	63.4	4	209,133	15.0	42.3	5	146,832	11.1	14.8	5	1,192,844	21.5	65.2	9
3.00– 3.09	95,566	5.9	83.0	4	149,694	12.2	75.6	6	368,064	26.1	68.4	10	514,916	38.9	53.7	13	772,614	14.0	79.2	6
3.10– 3.19	164,126	10.3	93.3	4	194,685	15.9	91.5	8	311,870	22.2	90.6	12	337,500	25.6	79.3	11	892,470	16.1	95.3	7
3.20– 3.29	14,692	.9	94.2	1	61,350	5.0	96.5	2	86,079	6.1	96.7	4	57,616	4.4	83.7	3				
3.30– 3.39	23,074	1.5	95.7	1									3,722	.3	84.0	1	12,989	.2	95.5	1
3.40– 3.49	4,995	.3	96.0	1	15,874	1.3	97.8	1					29,664	2.2	86.2	1	95,613	1.7	97.2	1
3.50– 3.59					1,729	.1	97.9	1	27,001	1.9	98.6	1	5,485	.4	86.6	1				
3.60– 3.69	2,799	.2	96.2	1																
3.70– 3.79									2,421	.2	98.8	1	3,037	.2	86.8	1	9,538	.2	97.4	1
3.80– 3.89					1,281	.1	98.0	1					153,942	11.6	98.4	1				
3.90– 3.99																				
4.00– 4.09																	53,448	1.0	98.4	1
4.50– 4.59					12,403	1.0	99.0	1												
4.60– 4.69																				
4.70– 4.79	25,004	1.6	97.8	1																
4.80– 4.89					8,556	.7	99.7	1												
4.90– 4.99																				
5.00– 5.09	33,649	2.2	100.0	2	3,045	.3	100.0	1									62,365	1.1	99.5	1
5.10– 5.19									12,563	.9	99.7	1					28,903	.5	100.0	1
5.20– 5.29													22,276	1.6	100.0	2				
5.30– 5.39									4,383	.3	100.0	1								
Total	1,585,944	100.0	100.0	42	1,228,780	100.0	100.0	42	1,405,297	100.0	100.0	42	1,324,612	100.0	100.0	42	5,544,633	100.0	100.0	42
Average per ton	$2.89				$2.86				$2.98				$3.20				$2.98			

TABLE 6.—*Total revised labor cost, by quarterly and yearly periods for 1918, for 27 operators producing bituminous coal in Appanoose-Boone district of the State of Iowa.*

Per ton cost by $0.10 groupings.	January–March, 1918, inclusive.				April–June, 1918, inclusive.				July–September, 1918, inclusive.				October–December, 1918, inclusive.				Year, 1918.			
	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$1.80–$1.89					2,342	0.6	0.6	1	4,517	0.9	0.9	1								
1.90– 1.99													5,271	1.3	1.3	1	14,718	0.8	0.8	1
2.00– 2.09	89,784	16.9	16.9	1					90,407	17.1	18.0	1								
2.10– 2.19	17,899	3.4	20.3	2	65,033	17.5	18.1	1									283,302	15.5	16.3	1
2.20– 2.29	29,788	5.6	25.9	3	21,970	5.9	24.0	2	101,574	19.2	37.2	3	38,078	9.6	10.9	1	93,711	5.2	21.5	2
2.30– 2.39	152,207	28.8	54.7	5	18,805	5.1	29.1	3	61,088	11.6	48.8	3	28,217	7.1	18.0	3	263,216	14.4	35.9	1
2.40– 2.49	36,120	6.8	61.5	3	95,511	25.5	54.6	5	12,581	2.4	51.2	1	11,661	2.9	20.9	1	304,298	16.6	52.5	6
2.50– 2.59	78,654	14.8	76.3	5	31,774	8.6	63.2	3	102,140	19.3	70.5	7	111,689	28.1	49.0	6	190,340	10.4	62.9	4
2.60– 2.69	111,953	21.2	97.5	5	18,081	4.9	68.1	1	37,863	7.2	77.7	4	81,276	20.6	69.6	6	262,623	14.4	77.3	5
2.70– 2.79	4,329	.8	98.3	1	62,458	16.7	84.8	4	82,025	15.6	93.3	4	68,587	17.2	86.8	4	209,404	11.5	88.8	3
2.80– 2.89	8,716	1.7	100.0	2	16,074	4.3	89.1	1	35,224	6.7	100.0	3	20,611	5.2	92.0	3	205,174	11.2	100.0	4
2.90– 2.99					13,055	3.5	92.6	3												
3.00– 3.09													18,130	4.6	96.6	1				
3.10– 3.19					20,583	5.5	98.1	2												
3.20– 3.29					7,098	1.9	100.0	1												
3.60– 3.69													13,613	3.4	100.0	1				
Total	529,450	100.0	100.0	27	372,784	100.0	100.0	27	527,419	100.0	100.0	27	397,133	100.0	100.0	27	1,826,786	100.0	100.0	27
Average cost per ton	$2.39				$2.53				$2.43				$2.62				$2.48			

TABLE 7.—*Total revised supply cost, by quarterly and yearly periods for 1918, for 27 operators producing bituminous coal in Appanoose-Boone district of the State of Iowa.*

Per ton cost by $0.10 groupings.	January-March, 1918, inclusive.				April-June, 1918, inclusive.				July-September, 1918, inclusive.				October-December, 1918, inclusive.				Year, 1918.			
	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$0.00-$0.09	60,225	11.4	11.4	4	20,331	5.5	5.5	3	61,804	11.8	11.8	4	4,420	1.1	1.1	1	62,942	3.4	3.4	2
.10- .19	303,867	57.2	68.6	12	109,791	29.4	34.9	9	138,463	26.2	38.0	9	183,083	46.1	47.2	11	500,866	27.5	30.9	8
.20- .29	148,811	28.2	96.8	7	205,375	55.1	90.1	11	285,817	54.1	92.1	9	59,879	15.1	62.3	5	940,150	51.4	82.3	13
.30- .39	9,471	1.8	98.6	2	28,654	7.7	97.7	2	13,630	2.6	94.7	2	62,974	15.9	78.2	5	285,053	15.6	97.9	2
.40- .49	7,076	1.4	100.0	2	4,894	1.3	99.0	1	23,188	4.4	99.1	2	17,843	4.4	82.6	3				
.50- .59													68,934	17.4	100.0	2				
.60- .69																	23,057	1.3	99.2	1
.70- .79																	14,718	.8	100.0	1
1.40- 1.49									4,517	0.9	100.0	1								
1.50- 1.59					3,739	1.0	100.0	1												
Total	529,450	100.0	100.0	27	372,784	100.0	100.0	27	527,419	100.0	100.0	27	397,133	100.0	100.0	27	1,826,786	100.0	100.0	27
Average cost per ton	$0.17				$0.22				$0.23				$0.28				$0.22			

TABLE 8.—*Total revised general expenses, by quarterly and yearly periods for 1918, for 27 operators producing bituminous coal in Appanoose-Boone district of the State of Iowa.*

Per ton cost by $0.10 groupings.	January-March, 1918, inclusive.				April-June, 1918, inclusive.				July-September, 1918, inclusive.				October-December, 1918, inclusive.				Year, 1918.			
	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$0.00-$0.09	4,705	0.9	0.9	1	4,229	1.1	1.1	1	6,305	1.2	1.2	1	5,067	1.3	1.3	1	20,306	1.1	1.1	1
.10- .19	63,081	12.0	12.9	4	19,230	5.1	6.2	2	34,631	6.6	7.8	3	25,367	6.3	7.6	3	87,927	4.8	5.9	2
.20- .29	201,801	38.2	51.1	11	55,136	14.8	21.0	5	265,908	50.4	58.2	14	75,338	18.9	26.5	7	643,429	35.2	41.1	10
.30- .39	257,275	48.4	99.5	10	251,883	67.7	88.7	13	202,519	38.4	96.6	7	231,490	58.5	85.0	12	1,007,751	55.2	96.3	12
.40- .49	2,588	.5	100.0	1	23,172	6.2	94.9	2	18,056	3.4	100.0	2	53,782	13.5	98.5	3	67,373	3.7	100.0	2
.50- .59					14,240	3.8	98.7	3					6,089	1.5	100.0	1				
.60- .69					4,894	1.3	100.0	1												
Total	529,450	100.0	100.0	27	372,784	100.0	100.0	27	527,419	100.0	100.0	27	397,133	100.0	100.0	27	1,826,786	100.0	100.0	27
Average cost per ton	$0.27				$0.34				$0.28				$0.32				$0.30			

TABLE 9.—*Total revised f. o. b. mine cost, by quarterly and yearly periods for 1918, for 27 operators producing bituminous coal in Appanoose-Boone district of the State of Iowa.*

Per ton cost by $0.10 groupings.	January–March, 1918, inclusive.				April–June, 1918, inclusive.				July–September, 1918, inclusive.				October–December, 1918, inclusive.				Year, 1918.			
	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$2.40–$2.49	15,311	2.9	2.9	1	2,342	0.6	0.6	1												
2.50–2.59	105,091	19.8	22.7	2	13,407	3.6	4.2	1	90,407	17.1	17.1	1								
2.60–2.69	37,722	7.2	29.9	2	16,503	4.4	8.6	2	14,201	2.7	19.8	1	5,271	1.3	1.3	1	339,169	18.6	18.6	2
2.70–2.79	117,601	22.2	52.1	5	85,930	23.1	31.7	3	30,865	5.9	25.7	2					69,450	3.8	22.4	2
2.80–2.89	29,796	5.6	57.7	2	13,815	3.7	35.4	2	107,879	20.4	46.1	4	74,241	18.7	20.0	5	149,527	8.2	30.6	3
2.90–2.99	72,039	13.5	71.2	4	32,796	8.8	44.2	2	88,425	16.7	62.8	5	39,132	9.8	29.8	4	464,041	25.3	55.9	6
3.00–3.09	47,833	9.1	80.3	4	49,142	13.2	57.4	2	22,019	4.2	67.0	2	30,227	7.6	37.4	2	200,956	11.0	66.9	3
3.10–3.19	71,587	13.5	93.8	3	48,291	13.0	70.4	4	89,450	16.9	83.9	5	12,706	3.2	40.6	1				
3.20–3.29	26,709	5.1	98.9	3	35,851	9.6	80.0	1	19,849	3.8	87.7	2	94,206	23.8	64.4	5	466,638	25.6	92.5	8
3.30–3.39	5,761	1.1	100.0	1	15,184	4.1	84.1	2	51,344	9.8	97.5	3	34,584	8.7	73.1	4	33,254	1.8	94.3	1
3.40–3.49					15,689	4.2	88.3	1					55,993	14.1	87.2	1	80,694	4.4	98.7	1
3.50–3.59					16,074	4.3	92.6	1	4,517	.9	98.4	1	12,941	3.3	90.5	1				
3.60–3.69					12,029	3.2	95.8	2												
3.70–3.79									8,463	1.6	100.0	1	18,130	4.6	95.1	1	23,057	1.3	100.0	1
3.80–3.89					7,098	1.9	97.7	1					6,089	1.5	96.6	1				
3.90–3.99													13,613	3.4	100.0	1				
4.00–4.09																				
4.10–4.19					4,894	1.3	99.0	1												
4.80–4.89					3,739	1.0	100.0	1												
Total	529,450	100.0	100.0	27	372,784	100.0	100.0	27	527,419	100.0	100.0	27	397,133	100.0	100.0	27	1,826,786	100.0	100.0	27
Average cost per ton	$2.83				$3.09				$2.94				$3.22				$3.00			

TABLE 10.—*Total sales realization, by quarterly and yearly periods for 1918, for 27 operators producing bituminous coal in Appanoose-Boone district of the State of Iowa.*

Per ton by $0.10 groupings.	January–March, 1918, inclusive.				April–June, 1918, inclusive.				July–September, 1918, inclusive.				October–December, 1918, inclusive.				Year, 1918.			
	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$2.50–$2.59	4,705	0.9	0.9	1																
2.60– 2.69					4,389	1.2	1.2	1												
2.70– 2.79					17,636	4.7	5.9	2									20,306	1.1	1.1	1
2.80– 2.89									18,762	3.5	3.5	2	5,067	1.3	1.3	1				
2.90– 2.99	103,504	19.7	20.6	2																
3.00– 3.09	35,545	6.7	27.3	2	12,274	3.3	9.2	1	104,608	19.8	23.3	2	4,517	1.1	2.4	1	338,940	18.5	19.6	2
3.10– 3.19	27,706	5.2	32.5	2	73,763	19.7	28.9	2	15,166	2.9	26.2	1	74,510	18.8	21.2	4	112,330	6.1	25.7	3
3.20– 3.29	31,723	5.9	38.4	2	26,856	7.3	36.2	2	16,135	3.0	29.2	2					171,322	9.4	35.1	3
3.30– 3.39	222,715	42.0	80.4	7	27,558	7.3	43.5	4	139,975	26.4	55.6	4	134,896	33.9	55.1	8	501,667	27.4	62.5	5
3.40– 3.49	9,715	1.8	82.2	1	198,400	53.2	96.7	13	212,536	40.2	95.8	14	162,144	40.9	96.0	11	438,423	24.0	86.5	6
3.50– 3.59	21,907	4.1	86.3	1					22,048	4.2	100.0	2	5,271	1.3	97.3	1	201,513	11.0	97.5	6
3.60– 3.69	34,726	6.5	92.8	2													45,442	2.5	100.0	1
3.70– 3.79	20,696	3.8	96.6	3	12,302	3.3	100.0	2					10,585	2.7	100.0	1				
3.80– 3.89	17,603	3.4	100.0	4																
Total	530,545	100.0	100.0	27	373,178	100.0	100.0	27	529,230	100.0	100.0	27	396,990	100.0	100.0	27	1,829,943	100.0	100.0	27
Average per ton	$3.30				$3.32				$3.31				$3.35				$3.32			

TABLE 11.—*Claimed labor, supplies, general expenses, and total f. o. b. mine cost for the year 1918, for 42 operators producing bituminous coal in Marion-Monroe-Polk district of the State of Iowa.*

Labor cost.					Supply cost.					General expenses.					Total f. o. b. mine cost.				
Per ton cost by $0.10 groupings.	Production tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Per ton cost by $0.10 groupings.	Production tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Per ton cost by $0.10 groupings.	Production tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Per ton cost by $0.10 groupings.	Production tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$1.70-$1.79	602,300	10.7	10.7	3	$0.10-$0.19	1,868,610	32.9	32.9	9	$0.10-$0.19	195,421	3.4	3.4	2	$2.10-$2.19	299,606	5.3	5.3	1
1.90- 1.99	760,052	13.4	24.1	5	.20- .29	2,288,752	40.1	73.0	15	.20- .29	1,922,667	33.9	37.3	13	2.20- 2.29	60,411	1.1	6.4	1
2.00- 2.09	1,365,930	24.0	48.1	6	.30- .39	844,769	14.9	87.9	10	.30- .39	2,141,306	37.7	75.0	9	2.30- 2.39	294,547	5.2	11.6	1
2.10- 2.19	1,037,883	18.2	66.3	6	.40- .49	208,070	3.6	91.5	3	.40- .49	579,754	10.0	85.0	7	2.40- 2.49	538,797	9.5	21.1	3
2.20- 2.29	662,982	11.5	77.8	8	.50- .59	310,469	5.5	97.0	3	.50- .59	671,235	11.9	96.9	6	2.50- 2.59	1,218,274	21.4	42.5	5
2.30- 2.39	576,747	10.1	87.9	6	.60- .69	111,614	2.0	99.0	1	.60- .69	73,283	1.3	98.2	2	2.60- 2.69	1,123,329	19.7	62.2	6
2.40- 2.49	439,470	7.7	95.6	4	.70- .79	59,669	1.0	100.0	1	.70- .79	13,694	.2	98.4	1	2.70- 2.79	212,594	3.7	65.9	2
2.50- 2.59	116,615	2.1	97.7	2						.80- .89	30,728	.5	98.9	1	2.80- 2.89	362,218	6.4	72.3	4
2.60- 2.69	129,974	2.3	100.0	2						.90- .99	63,865	1.1	100.0	1	2.90- 2.99	399,104	7.0	79.3	4
															3.00- 3.09	277,805	4.8	84.1	2
															3.10- 3.19	315,791	5.6	89.7	3
															3.20- 3.29	174,932	3.1	92.8	2
															3.30- 3.39	110,485	1.9	94.7	3
															3.40- 3.49	110,221	1.9	96.6	2
															3.50- 3.59	18,360	.3	96.9	1
															3.80- 3.89	63,865	1.1	98.0	1
															3.90- 3.99	111,614	2.0	100.0	1
$2.12	5,691,953	100.0	100.0	42	$0.27	5,691,953	100.0	100.0	42	$0.35	5,691,953	100.0	100.0	42	$2.74	5,691,953	100.0	100.0	42

TABLE 12.—*Claimed labor, supplies, general expenses, and total f. o. b. mine cost for the year 1918, for 27 operators producing bituminous coal in Appanoose-Boone district of the State of Iowa.*

Labor cost.					Supply cost.					General expenses.					Total f. o. b. mine cost.				
Per ton cost by $0.10 groupings.	Production tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Per ton cost by $0.10 groupings.	Production tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Per ton cost by $0.10 groupings.	Production tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Per ton cost by $0.10 groupings.	Production tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$1.90-$1.99	14,718	0.8	0.8	1	$0.10-$0.19	346,242	18.7	18.7	5	$0.00-$0.09	20,351	1.1	1.1	1	$2.60-$2.69	286,757	15.5	15.5	1
2.00- 2.09	286,757	15.5	16.3	1	.20- .29	951,741	51.4	70.1	14	.10- .19	67,590	3.6	4.7	1	2.70- 2.79	128,972	7.0	22.5	3
2.10- 2.19	39,204	2.1	18.4	1	.30- .39	496,292	26.7	96.8	5	.20- .29	232,885	12.6	17.3	6	2.80- 2.89	51,499	2.8	25.3	1
2.20- 2.29	108,621	5.9	24.3	2	.40- .49	22,017	1.2	98.0	1	.30- .39	1,093,782	59.1	76.4	10	2.90- 2.99	58,192	3.1	28.4	2
2.30- 2.39	504,619	27.2	51.5	5	.70- .79	37,775	2.0	100.0	2	.40- .49	416,402	22.4	98.8	8	3.00- 3.09	633,210	34.1	62.5	7
2.40- 2.49	20,351	1.1	52.6	1	.....	.....	.....	.....	.....	.50- .59	23,057	1.2	100.0	1	3.10- 3.19	82,749	4.5	67.0	2
2.50- 2.59	345,112	18.6	71.2	7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3.20- 3.29	429,852	23.2	90.2	7
2.60- 2.69	114,160	6.1	77.3	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3.30- 3.39	76,686	4.1	94.3	2
2.70- 2.79	352,935	19.1	96.4	6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3.50- 3.59	83,093	4.5	98.8	1
2.80- 2.89	67,590	3.6	100.0	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3-90- 3.99	23,057	1.2	100.0	1
$2.44	1,854,067	100.0	100.0	27	$0.26	1,854,067	100.0	100.0	27	$0.35	1,854,067	100.0	100.0	27	$3.05	1,854,067	100.0	100.0	27

TABLE 13.—*Total revised labor cost, by quarterly and yearly periods for 1918, for 38 operators producing bituminous coal in Cherokee-Crawford district of the State of Kansas.*

Per ton cost by $0.10 groupings.	January–March, 1918, inclusive.				April–June, 1918, inclusive.				July–September, 1918, inclusive.				October–December, 1918, inclusive.				Year, 1918.			
	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$0.80–$0.89	43,991	2.8	2.8	2	32,179	2.0	2.0	2	41,590	2.4	2.4	2								
.90– 99	16,430	1.0	3.8	1	19,811	1.2	3.2	1	56,954	3.3	5.7	3					80,048	1.3	1.3	1
1.00– 1.09					12,373	.8	4.0	1	14,836	.9	6.6	1					56,211	.9	2.2	1
1.10– 1.19	12,281	.8	4.6	1	25,131	1.6	5.6	2	11,408	.7	7.3	1	26,930	1.9	1.9	2	169,464	2.7	4.9	3
1.20– 1.29					35,749	2.2	7.8	3	11,966	.7	8.0	1	31,499	2.3	4.2	2	46,093	.7	5.6	1
1.30– 1.39	21,851	1.4	6.0	2													141,789	2.3	7.9	3
1.40– 1.49	22,725	1.4	7.4	2	18,982	1.2	9.0	2	8,591	.5	8.5	1								
1.50– 1–59	10,858	.7	8.1	1	8,662	.6	9.6	1					21,492	1.6	5.8	2				
1.60– 1.69									10,250	.6	9.1	1								
1.70– 1.79	113,025	7.1	15.2	2	130,018	8.1	17.7	2	150,640	8.8	17.9	2	8,192	.6	6.4	1	569,068	9.1	17.0	3
1.80– 1.89	244,432	15.3	30.5	4	110,408	7.0	24.7	3	3,806	.2	18.1	1	116,804	8.5	14.9	1	11,654	.2	17.2	1
1.90– 1.99	555,811	34.9	65.4	6	359,947	22.6	47.3	5	445,809	26.0	44.1	8	59,081	4.3	19.2	2	1,710,605	27.2	44.4	5
2.00– 2.09	286,427	17.9	83.3	5	336,325	21.1	68.4	4	421,927	24.6	68.7	6	252,908	18.2	37.4	5	1,631,689	25.9	70.3	10
2.10– 2.19	100,054	6.2	89.5	7	286,171	17.9	86.3	5	344,230	20.2	88.9	6	424,150	30.8	68.2	7	1,039,751	16.5	86.8	4
2.20– 2.29	44,672	2.8	92.3	2	36,636	2.3	88.6	2	33,518	2.0	90.9	1	76,708	5.5	73.7	6	164,308	2.6	89.4	2
2.30– 2.39					47,332	2.9	91.5	3	17,156	1.0	91.9	2	195,633	14.2	87.9	2	166,540	2.7	92.1	2
2.40– 2.49					129,007	8.1	99.6	1					3,216	.2	88.1	1				
2.50– 2.59	122,258	7.7	100.0	3									49,051	3.6	91.7	2	463,889	7.4	99.5	1
2.60– 2.69									131,054	7.7	99.6	1								
2.70– 2.79													96,501	7.0	98.7	1				
2.80– 2.89																	29,265	.5	100.0	1
2.90– 2.99					7,032	.4	100.0	1	6,938	.4	100.0	1								
3.00– 3.09																				
3.10– 3.19													6,141	.4	99.1	1				
3.20– 3.29													3,522	.3	99.4	1				
3.90– 3.99													3,656	.3	99.7	1				
6.00– 6.09													3,439	.3	100.0	1				
Total	1,594,815	100.0	100.0	38	1,582,201	100.0	100.0	38	1,710,673	100.0	100.0	38	1,378,923	100.0	100.0	38	6,280,374	100.0	100.0	38
Average cost per ton		$1.94				$1.95				$1.97				$2.15				$2.00		

TABLE 14.—*Total revised supply cost, by quarterly and yearly periods for 1918, for 38 operators producing bituminous coal in Cherokee-Crawford district of the State of Kansas.*

Per ton cost by $0.10 groupings.	January–March, 1918, inclusive.				April–June, 1918, inclusive.				July–September, 1918, inclusive.				October–December, 1918, inclusive.				Year, 1918.			
	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$0.00–$0.09	18,980	1.2	1.2	2	13,565	0.8	0.8	1	12,330	0.7	0.7	1	9,023	0.7	0.7	1	46,598	0.7	0.7	1
.10– .19	1,116,826	70.0	71.2	16	934,033	58.7	59.5	18	614,032	35.9	36.6	11	274,734	19.9	20.6	7	2,122,046	33.8	34.5	10
.20– .29	284,766	17.8	89.0	11	567,242	35.5	95.0	12	903,007	52.8	89.4	13	523,706	37.9	58.5	9	3,607,567	57.5	92.0	16
.30– .39	140,161	8.8	97.8	5	23,313	1.4	96.4	2	132,821	7.8	97.2	8	457,974	33.2	91.7	8	240,265	3.8	95.8	5
.40– .49	12,281	.8	98.6	1	45,683	2.8	99.2	4	38,236	2.2	99.4	4	39,572	2.8	94.5	4	184,662	2.9	98.7	4
.50– .59	12,361	.8	99.4	1									18,689	1.3	95.8	2	50,363	.8	99.5	1
.60– .69					12,127	.8	100.0	1					12,066	.9	96.7	1	28,873	.5	100.0	1
.70– .79	9,440	.6	100.0	2					10,250	.6	100.0	1	15,861	1.2	97.9	1				
.80– .89													16,681	1.2	99.1	2				
.90– .99													3,656	.3	99.4	1				
1.00– 1.09													3,439	.3	99.7	1				
1.10– 1.19																				
1.20– 1.29																				
1.30– 1.39													3,522	.3	100.0	1				
Total	1,594,815	100.0	100.0	38	1,595,963	100.0	100.0	38	1,710,673	100.0	100.0	38	1,378,923	100.0	100.0	38	6,280,374	100.0	100.0	38
Average cost per ton	$0.19				$0.19				$0.22				$0.30				$0.22			

TABLE 15.—*Total revised general expenses, by quarterly and yearly periods for 1918, for 38 operators producing bituminous coal in Cherokee-Crawford district of the State of Kansas.*

Per ton cost by $0.10 groupings.	January-March, 1918, inclusive.				April-June, 1918, inclusive.				July-September, 1918, inclusive.				October-December, 1918, inclusive.				Year, 1918.			
	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$0.00-$0.09	7,300	0.5	0.5	1	9,785	0.6	0.6	1	16,512	1.0	1.0	2	7,723	0.6	0.6	1	28,563	0.4	0.4	1
.10- .19	36,562	2.2	2.7	3	167,402	10.4	11.0	4	164,360	9.6	10.6	3	24,711	1.8	2.4	2	149,253	2.4	2.8	3
.20- .29	317,320	19.9	22.6	6	223,007	13.9	24.9	6	276,848	16.1	26.7	8	232,878	17.0	19.4	9	1,380,178	21.9	24.7	7
.30- .39	1,111,499	69.7	92.3	18	1,025,832	64.5	89.4	17	1,096,838	64.1	90.8	16	649,398	47.0	66.4	11	4,026,453	64.2	88.9	16
.40- .49	92,497	5.9	98.2	7	127,572	8.0	97.4	7	125,835	7.4	98.2	7	353,932	25.6	92.0	5	432,416	6.9	95.8	6
.50- .59	6,225	.4	98.6	1	28,837	1.8	99.2	2	30,280	1.8	100.0	2	80,623	5.8	97.8	6	199,205	3.2	99.0	4
.60- .69	23,412	1.4	100.0	2	13,528	.8	100.0	1					26,219	1.9	99.7	3	64,306	1.0	100.0	1
1.60- 1.69													3,439	.3	100.0	1				
Total	1,594,815	100.0	100.0	38	1,595,963	100.0	100.0	38	1,710,673	100.0	100.0	38	1,378,923	100.0	100.0	38	6,280,374	100.0	100.0	38
Average cost per ton	$0.32				$0.32				$0.31				$0.37				$0.33			

TABLE 16.—*Total revised f. o. b. mine cost, by quarterly and yearly periods for 1918, for 38 operators producing bituminous coal in Cherokee-Crawford district of the State of Kansas.*

Per ton cost by $0.10 groupings.	January–March, 1918, inclusive.				April–June, 1918, inclusive.				July–September, 1918, inclusive.				October–December, 1918, inclusive.				Year, 1918.			
	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$1.30–$1.39					16,753	1.0	1.0	1												
1.40– 1.49	38,152	2.4	2.4	2																
1.50– 1.59	22,269	1.4	3.8	1	15,426	1.0	2.0	1	22,654	1.3	1.3	1								
1.60– 1.69					31,951	2.0	4.0	2	35,002	2.0	3.3	2								
1.70– 1.79									14,836	.9	4.2	1					136,259	2.2	2.2	2
1.80– 1.89					22,776	1.4	5.4	2	40,888	2.4	6.6	2								
1.90– 1.99	21,565	1.4	5.2	2					23,374	1.4	8.0	2	15,625	1.1	1.1	1	103,092	1.7	3.9	2
2.00– 2.09	9,490	.6	5.8	1	21,570	1.4	6.8	2	8,591	.5	8.5	1					45,088	.7	4.6	1
2.10– 2.19					137,824	8.6	15.4	2	153,278	8.9	17.4	2	11,305	.8	1.9	1	64,306	1.0	5.6	1
2.20– 2.29	174,087	10.9	16.7	5	69,581	4.3	19.7	6	20,976	1.2	18.6	1					705,814	11.2	16.8	5
2.30– 2.39	366,835	23.0	39.7	7	141,207	8.9	28.6	3	24,932	1.5	20.1	3	150,891	11.0	12.9	4	99,621	1.6	18.4	2
2.40– 2.49	465,029	29.2	68.9	5	212,189	13.5	42.1	4	433,146	25.3	45.4	6	98,353	7.2	20.1	5	955,383	15.1	33.5	6
2.50– 2.59	253,672	15.9	84.8	3	436,697	27.3	69.4	4	366,655	21.4	66.8	4					2,048,181	32.6	66.1	6
2.60– 2.69	5,421	.3	85.1	1	275,601	17.2	86.6	5	88,707	5.1	71.9	3	70,733	5.1	25.2	4	344,066	5.5	71.6	3
2.70– 2.79	52,704	3.2	88.3	3	162,238	10.2	96.8	2	271,816	16.0	87.9	3	259,438	18.8	44.0	3	941,370	15.0	86.6	3
2.80– 2.89	128,867	8.1	96.4	3	17,225	1.1	97.9	2	56,063	3.3	91.2	3	398,376	28.8	72.8	7	232,962	3.7	90.3	4
2.90– 2.99	29,357	1.8	98.2	1					131,054	7.7	98.9	1	3,051	.2	73.0	1	463,889	7.4	97.7	1
3.00– 3.09	9,154	.6	98.8	1	27,893	1.7	99.6	1	11,763	.7	99.6	2	183,280	13.3	86.3	1	111,078	1.8	99.5	1
3.10– 3.19	9,971	.6	99.4	1									137,419	10.0	96.3	4				
3.20– 3.29	2,465	.2	99.6	1																
3.30– 3.39	5,777	.4	100.0	1									3,216	.2	96.5	1	29,265	.5	100.0	1
3.40– 3.49					7,032	.4	100.0	1	6,938	.4	100.0	1	21,989	1.6	98.1	1				
3.50– 3.59																				
3.60– 3.69													6,141	.4	98.5	1				
3.70– 3.79													8,489	.6	99.1	1				
4.80– 4.89													3,522	.3	99.4	1				

$5.50– 5.59													3,656	.3	99.7	1				
8.70– 8.79													3,439	.3	100.0	1				
Total	1,594,815	100.0	100.0	38	1,595,963	100.0	100.0	38	1,710,673	100.0	100.0	38	1,378,923	100.0	100.0	38	6,280,374	100.0	100.0	38
Average cost per ton	$2.45				$2.46				$2.50				$2.82				$2.55			

TABLE 17.—*Total sales realization, by quarterly and yearly periods for 1918, for 37 operators producing bituminous coal in Cherokee-Crawford district of the State of Kansas.*

Per ton by $0.10 groupings.	January–March, 1918, inclusive.				April–June, 1918, inclusive.				July–September, 1918, inclusive.				October–December, 1918, inclusive.				Year, 1918.			
	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$2.10–$2.19	21,722	1.4	1.4	1	19,811	1.2	1.2	1	22,654	1.3	1.3	1	15,861	1.2	1.2	1	80,048	1.3	1.3	1
2.20– 2.29																				
2.30– 2.39	12,752	.8	2.2	2	9,785	.6	1.8	1	11,966	.7	2.0	1	9,426	.7	1.9	1	28,873	.5	1.8	1
2.40– 2.49	84,563	5.3	7.5	6	68,817	4.4	6.2	5	37,488	2.2	4.2	3	19,310	1.4	3.3	2	145,467	2.4	4.2	3
2.50– 2.59	2,465	.2	7.7	1	27,486	1.7	7.9	2					19,067	1.4	4.7	2	136,760	2.1	6.3	2
2.60– 2.69					23,981	1.5	9.4	1	14,333	.8	5.0	1	96,501	7.0	11.7	1	50,363	.8	7.1	1
2.70– 2.79	295,203	18.6	26.3	2	129,007	8.2	17.6	1	162,647	9.6	14.6	4	39,975	2.9	14.6	3	598,601	9.6	16.7	3
2.80– 2.89	588,269	37.1	63.4	8	250,725	15.9	33.5	6	38,175	2.3	16.9	2	14,961	1.2	15.8	2	54,204	.9	17.6	2
2.90– 2.99	504,140	31.8	95.2	11	978,641	61.9	95.4	14	867,946	51.2	68.1	13	84,799	6.1	21.9	7	4,939,226	79.1	96.7	19
3.00– 3.09	25,722	1.6	96.8	2	34,265	2.1	97.5	2	521,255	30.8	98.9	11	1,057,723	76.9	98.8	16	73,878	1.2	97.9	2
3.10– 3.19	28,264	1.8	98.6	3	39,683	2.5	100.0	4	18,936	1.1	100.0	1	15,792	1.2	100.0	2	128,965	2.1	100.0	3
3.20– 3.29	22,269	1.4	100.0	1																
Total	1,585,369	100.0	100.0	37	1,582,201	100.0	100.0	37	1,695,400	100.0	100.0	37	1,373,415	100.0	100.0	37	6,236,385	100.0	100.0	37
Average per ton	$2.84				$2.86				$2.94				$2.97				$2.90			

TABLE 18.—*Claimed labor, supplies, general expenses, and total f. o. b. mine cost for the year 1918, for 38 operators producing bituminous coal in Cherokee-Crawford district of the State of Kansas.*

Labor cost.					Supply cost.					General expenses.					Total f. o. b. mine cost.				
Per ton cost by $0.10 groupings.	Production tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Per ton cost by $0.10 groupings.	Production tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Per ton cost by $0.10 groupings.	Production tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Per ton cost by $0.10 groupings.	Production tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$0.90-$0.99	82,486	1.3	1.3	1	$0.00-$0.09	46,598	0.7	0.7	1	$0.00-$0.09	57,436	0.9	0.9	2	$1.70-$1.79	56,211	0.9	0.9	1
1.00- 1.09	56,211	.9	2.2	1	.10- .19	301,804	4.7	5.4	4	.10- .19	120,660	1.8	2.7	2	1.80- 1.89	82,486	1.3	2.2	1
1.10- 1.19	173,128	2.7	4.9	3	.20- .29	3,159,380	48.9	54.3	11	.20- .29	1,434,344	22.1	24.8	4	1.90- 1.99	.....	.....	.....	.....
1.20- 1.29	151,819	2.3	7.2	3	.30- .39	2,313,240	35.8	90.1	11	.30- .39	2,025,589	31.4	56.2	12	2.00- 2.09	88,110	1.4	3.6	2
1.30- 1.39	43,022	.7	7.9	1	.40- .49	403,425	6.2	96.3	6	.40- .49	2,454,314	38.0	94.2	11	2.10- 2.19	65,506	1.0	4.6	1
.....	.....	.....	.....	.....	.50- .59	214,353	3.3	99.6	4	.50- .59	132,654	2.0	96.2	3	2.20- 2.69	675,528	10.4	15.0	4
1.60- 1.69	26,231	.5	8.4	1	.60- .69	28,873	.4	100.0	1	.60- .69	117,310	1.8	98.0	2	2.30- 2.39	191,390	3.1	18.1	4
1.70- 1.79	557,788	8.6	17.0	2	.....	.....	.....	.....	.....	.70- .79	62,534	1.0	99.0	1	2.40- 2.49	818,483	12.6	30.7	5
1.80- 1.89	950,179	14.7	31.7	4	.....	.....	.....	.....	.....	.80- .89	62,832	1.0	100.0	1	2.50- 2.59	610,938	9.5	40.2	4
1.90- 1.99	2,058,017	31.8	63.5	6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2.60- 2.69	1,858,106	28.7	68.9	6
2.00- 2.09	631,974	9.7	73.2	8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2.70- 2.79	1,198,290	18.5	87.4	2
2.10- 2.19	1,201,070	18.5	91.7	5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2.80- 2.89	120,479	1.8	89.2	3
2.20- 2.29	28,563	.5	92.2	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2.90- 2.99	488,487	7.5	96.7	2
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3.00- 3.09	181,375	2.8	99.5	2
2.50- 2.59	474,901	7.3	99.5	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
2.60- 2.69	32,284	.5	100.0	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3.30- 3.39	32,284	.5	100.0	1
$1.94	6,467,673	100.0	100.0	38	$0.29	6,467,673	100.0	100.0	38	$0.37	6,467,673	100.0	100.0	38	$2.60	6,467,673	100.0	100.0	38

TABLE 19.—*Total revised labor cost, by quarterly and yearly periods for 1918, for 24 operators producing bituminous coal in district No. 1 of the State of Missouri.*

Per ton cost by $0.10 groupings.	January-March, 1918, inclusive.				April-June, 1918, inclusive.				July-September, 1918, inclusive.				October-December, 1918, inclusive.				Year, 1918.			
	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$0.90-$0.99	27,215	5.1	5.1	1																
1.00- 1.09									46,564	8.3	8.3	2								
1.10- 1.19					36,271	7.1	7.1	2												
1.20- 1.29					48,534	9.6	16.7	4	101,844	18.2	26.5	5	11,964	2.8	2.8	1	179,424	8.8	8.8	2
1.30- 1.39	31,051	5.8	10.9	3													42,314	2.1	10.9	1
1.40- 1.49	64,425	12.0	22.9	3	98,512	19.2	35.9	3					62,532	14.8	17.6	3	420,576	20.6	31.5	5
1.50- 1.59	46,088	8.6	31.5	4	33,906	6.6	42.5	2	76,453	3.7	40.2	4	53,634	12.7	30.3	3	100,774	5.0	36.5	3
1.60- 1.69	27,797	5.2	36.7	3	18,658	3.6	46.1	2	48,646	8.6	48.8	3					94,996	4.6	41.1	2
1.70- 1.79	112,014	20.8	57.5	4	59,143	11.4	57.5	3	7,864	1.4	50.2	1	9,136	2.2	32.5	1	141,002	7.0	48.1	2
1.80- 1.89	44,206	8.3	65.8	2	71,685	3.9	71.4	2	56,404	10.0	60.2	2	107,184	25.3	57.8	6	290,388	14.3	62.4	3
1.90- 1.99	42,490	7.9	73.7	1					21,281	3.8	64.0	1								
2.00- 2.09	95,480	17.8	91.5	1	83,364	16.2	87.6	1									578,371	28.5	90.9	3
2.10- 2.19									138,257	24.6	88.6	2	59,189	14.1	71.9	2	20,932	1.0	91.9	1
2.20- 2.29	34,663	6.5	98.0	1	21,682	4.2	91.8	3	6,706	1.2	89.8	1	55,512	13.2	85.1	2				
2.30- 2.39					31,031	6.0	97.8	1					6,098	1.5	86.6	1	120,852	5.9	97.8	1
2.40- 2.49									31,337	5.6	95.4	1								
2.50- 2.59													33,118	7.8	94.4	2				
2.60- 2.69																				
2.70- 2.79	11,021	2.0	100.0	1					13,598	2.4	97.8	1	14,093	3.3	97.7	2				
2.80- 2.89																				
2.90- 2.99					11,317	2.2	100.0	1	12,393	2.2	100.0	1					44,232	2.2	100.0	1
3.00- 3.09																				
3.10- 3.19																				
3.20- 3.29													9,501	2.3	100.0	1				
Total	536,450	100.0	100.0	24	514,103	100.0	100.0	24	561,347	100.0	100.0	24	421,961	100.0	100.0	24	2,033,861	100.0	100.0	24
Average cost per ton	$1.75				$1.74				$1.77				$1.94				$1.80			

TABLE 20.—*Total revised supply cost, by quarterly and yearly periods for 1918, for 24 operators producing bituminous coal in district No. 1 of the State of Missouri.*

Per ton cost by $0.10 groupings.	January-March, 1918, inclusive.				April-June, 1918, inclusive.				July-September, 1918, inclusive.				October-December, 1918, inclusive.				Year, 1918.			
	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$0.00-$0.09	95,480	17.8	17.8	1					21,281	3.8	3.8	1								
.10- .19	170,691	31.8	49.6	6	181,541	35.2	35.2	5	201,850	36.0	39.8	5	107,453	25.5	25.5	3	722,894	35.6	35.6	5
.20- .29	79,168	16.4	66.0	4	118,084	23.0	58.2	5	78,242	13.9	53.7	2	109,439	26.0	51.5	6	389,474	19.2	54.8	3
.30- .39	108,259	18.5	84.5	7	137,521	26.9	85.1	7	117,563	20.9	74.6	7	78,651	18.6	70.1	5	353,779	17.4	72.2	6
.40- .49	68,007	12.7	97.2	4	39,481	7.6	92.7	5	42,300	7.5	82.1	3					270,572	13.2	85.4	5
.50- .59					37,176	7.3	100.0	2	36,829	6.6	88.7	2	44,432	10.5	80.6	3	254,828	12.5	97.9	4
.60- .69	8,654	1.6	98.8	1					23,396	4.1	92.8	2	32,622	7.8	88.4	2	42,314	2.1	100.0	1
.70- .79	6,191	1.2	100.0	1																
.80- .89									30,066	5.4	98.2	1	20,508	4.8	93.2	2				
.90- .99									9,820	1.8	100.0	1	11,964	2.8	96.0	1				
1.00- 1.09													7,595	1.8	97.8	1				
1.10- 1.19																				
1.20- 1.29																				
1.30- 1.39													9,297	2.2	100.0	1				
Total	536,450	100.0	100.0	24	514,103	100.0	100.0	24	561,347	100.0	100.0	24	421,961	100.0	100.0	24	2,033,861	100.0	100.0	24
Average cost per ton	$0.24				$0.27				$0.32				$0.39				$0.30			

TABLE 21.—*Total revised general expenses, by quarterly and yearly periods for 1918, for 24 operators producing bituminous coal in district No. 1 of the State of Missouri.*

Per ton cost by $0.10 groupings.	January-March, 1918, inclusive.				April-June, 1918, inclusive.				July-September, 1918, inclusive.				October-December, 1918, inclusive.				Year, 1918.			
	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$0.10-$0.19	56,944	10.6	10.6	2	31,031	6.0	6.0	1												
.20- .29	230,754	43.0	53.6	4	214,233	41.6	47.6	4	245,787	43.8	43.8	5	103,723	24.6	24.6	3	1,037,621	51.1	51.1	6
.30- .39	57,470	10.7	64.3	3	76,351	14.9	62.5	4	90,081	16.1	59.9	4	112,789	26.8	51.4	3	82,688	4.1	55.2	2
.40- .49	43,397	8.1	72.4	3	26,498	5.2	67.7	2	74,392	13.2	73.1	4	30,873	7.3	58.7	3	228,763	11.3	66.5	3
.50- .59	87,827	16.4	88.8	6	81,460	16.0	83.7	5	125,241	22.4	95.5	8	55,179	13.0	71.7	4	227,850	11.0	77.5	4
.60- .69	26,660	5.0	93.8	2	33,906	6.6	90.3	2	9,188	1.6	97.1	1	9,136	2.2	73.9	1	317,013	15.6	93.1	5
.70- .79	9,943	1.9	95.7	2	7,744	1.5	91.8	2					66,832	15.8	89.7	4	75,203	3.7	96.8	3
.80- .89	19,980	3.7	99.4	1	21,032	4.0	95.8	3	16,658	2.9	100.0	2	21,485	5.1	94.8	3				
.90- .99					21,848	4.2	100.0	1					2,886	0.7	95.5	1	64,723	3.2	100.0	1
1.00- 1.09																				
1.10- 1.19																				
1.20- 1.29																				
1.30- 1.39	3,475	0.6	100.0	1									9,761	2.3	97.8	1				
1.40- 1.49																				
1.50- 1.59													9,297	2.2	100.0	1				
Total	536,450	100.0	100.0	24	514,103	100.0	100.0	24	561,347	100.0	100.0	24	421,961	100.0	100.0	24	2,033,861	100.0	100.0	24
Average cost per ton	$0.37				$0.41				$0.39				$0.49				$0.41			

TABLE 22.—*Total revised f. o. b. mine cost, by quarterly and yearly periods for 1918, for 24 operators producing bituminous coal in district No. 1 of the State of Missouri.*

Per ton cost by $0.10 groupings.	January-March, 1918, inclusive.				April-June, 1918, inclusive.				July-September, 1918, inclusive.				October-December, 1918, inclusive.				Year, 1918.			
	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$1.80-$1.89	66,964	12.5	12.5	2	10,051	2.0	2.0	1												
1.90- 1.99					36,226	7.0	9.0	1	85,597	15.3	15.3	3					143,943	7.1	7.1	1
2.00- 2.09	22,281	4.1	16.6	1	20,807	4.1	13.1	2												
2.10- 2.19	62,977	11.8	28.4	2	60,731	11.9	25.0	2	34,949	6.2	21.5	2	52,534	12.5	12.5	2	38,456	1.9	9.0	1
2.20- 2.29	28,823	5.3	33.7	3	71,890	14.0	39.0	2	104,414	18.6	40.1	4					327,713	16.1	25.1	3
2.30- 2.39	119,802	22.4	56.1	3	78,255	15.3	54.3	3	35,788	6.4	46.5	1	45,345	10.7	23.2	2	186,051	9.2	34.3	2
2.40- 2.49	97,313	18.2	74.3	5	98,242	19.1	73.4	2	28,512	5.1	51.6	2	18,274	4.3	27.5	1	285,850	14.0	48.3	3
2.50- 2.59	77,153	14.4	88.7	2	15,809	3.1	76.5	1	101,937	18.2	69.8	2	15,323	3.6	31.1	1	658,032	32.4	80.7	5
2.60- 2.69	3,752	.7	89.4	1	60,151	11.6	88.7	3	66,386	11.8	81.6	1	95,105	22.6	53.7	4	62,318	3.1	83.8	2
2.70- 2.79									7,864	1.4	83.0	1	47,917	11.4	65.1	1	156,923	7.6	91.4	2
2.80- 2.89	16,718	3.1	92.5	1	11,172	2.1	90.2	2	18,986	3.3	86.3	2	26,524	6.3	71.4	1				
2.90- 2.99					6,945	1.3	91.5	1	44,217	7.9	94.2	3	27,140	6.4	77.8	2	13,478	0.7	92.1	1
3.00- 3.09	19,980	3.7	96.2	1									23,821	5.6	83.4	1	31,210	1.5	93.6	1
3.10- 3.19	11,021	2.0	98.2	1	21,848	4.2	95.7	1	6,706	1.2	95.4	1	9,386	2.2	85.6	1	20,932	1.0	94.6	1
3.20- 3.29																				
3.30- 3.39	9,666	1.8	100.0	2									14,008	3.3	88.9	2				
3.40- 3.49					11,317	2.2	97.9	1	12,393	2.2	97.6	1					44,232	2.2	96.8	1
3.50- 3.59					10,659	2.1	100.0	2												
3.60- 3.69																	64,723	3.2	100.0	1
3.70- 3.79													4,332	1.0	89.9	1				
3.80- 3.89													9,501	2.3	92.2	1				
3.90- 3.99													6,098	1.5	93.7	1				
4.00- 4.09													7,595	1.8	95.5	1				
4.10- 4.19																				
4.20- 4.29									13,598	2.4	100.0	1								
4.70- 4.79													9,761	2.3	97.8	1				
5.40- 5.49													9,297	2.2	100.0	1				
Total	536,450	100.0	100.0	24	514,103	100.0	100.0	24	561,347	100.0	100.0	24	421,961	100.0	100.0	24	2,033,861	100.0	100.0	24
Average cost per ton		$2.36				$2.42				$2.48				$2.82				$2.51		

TABLE 23.—*Total sales realization, by quarterly and yearly periods for 1918, for 24 operators producing bituminous coal in district No. 1 of the State of Missouri.*

Per ton by $0.10 groupings.	January–March, 1918, inclusive.				April–June, 1918, inclusive.				July–September, 1918, inclusive.				October–December, 1918, inclusive.				Year, 1918.			
	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$2.00–$2.09					11,023	2.1	2.1	1												
2.10– 2.19					11,620	2.2	4.3	1												
2.20– 2.29									21,281	3.8	3.8	1								
2.30– 2.39																				
2.40– 2.49																	78,184	3.8	3.8	1
2.50– 2.59	22,281	4.2	4.2	1	18,326	3.6	7.9	1												
2.60– 2.69	48,503	9.1	13.3	2	90,928	17.6	25.5	2	107,659	19.2	23.0	2	23,599	5.6	5.6	1	127,525	6.3	10.1	1
2.70– 2.79	76,924	14.4	27.7	2	133,495	25.8	51.3	2									298,632	14.7	24.8	1
2.80– 2.89	138,981	26.1	53.8	3	49,128	9.5	60.8	2	106,417	18.9	41.9	4	75,027	17.8	23.4	3	382,459	18.7	43.5	4
2.90– 2.99	58,524	11.0	64.8	3	46,277	8.9	69.7	2	128,353	23.0	64.9	6	39,535	9.3	32.7	3	182,390	9.0	52.5	2
3.00– 3.09	19,335	3.6	68.4	1	102,937	19.9	89.6	7	44,249	7.7	72.6	4	158,554	37.6	70.3	9	747,475	36.8	89.3	9
3.10– 3.19	48,183	9.0	77.4	4	38,152	7.4	97.0	4	110,214	19.6	92.2	5	89,318	21.1	91.4	5	152,453	7.5	96.8	4
3.20– 3.29	41,260	7.7	85.1	3	3,964	0.8	97.8	1	31,337	5.6	97.8	1	23,821	5.6	97.0	1	20,932	1.0	97.8	1
3.30– 3.39	12,121	2.3	87.4	2																
3.40– 3.49	3,475	0.7	88.1	1									2,886	0.7	97.7	1				
3.50– 3.59																				
3.60– 3.69	11,021	2.1	90.2	1	11,317	2.2	100.0	1												
3.70– 3.79	52,363	9.8	100.0	1					12,393	2.2	100.0	1	9,501	2.3	100.0	1	44,232	2.2	100.0	1
Total	536.450	100.0	100.0	24	514,103	100.0	100.0	24	561,347	100.0	100.0	24	421,961	100.0	100.0	24	2,033,861	100.0	100.0	24
Average per ton	$2.91				$2.84				$2.94				$3.04				$2.93			

TABLE 24.—*Total revised labor cost, by quarterly and yearly periods for 1918, for 20 operators producing bituminous coal in district No. 2 of the State of Missouri.*

Per ton cost by $0.10 groupings.	January–March, 1918, inclusive.				April–June, 1918, inclusive.				July–September, 1918, inclusive.				October–December, 1918, inclusive.				Year, 1918.			
	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$1.80–$1.89	167,241	29.4	29.4	1	144,939	29.3	29.3	1												
1.90– 1.99	21,955	3.9	33.3	1	18,630	3.8	33.1	1	140,639	26.7	26.7	1					559,258	27.4	27.4	1
2.00– 2.09									22,389	4.2	30.9	1	124,977	27.5	27.5	2	81,512	4.0	31.4	1
2.10– 2.19					8,164	1.6	34.7	1												
2.20– 2.29	153,579	27.1	60.4	3	117,800	23.8	58.5	2					10,179	2.2	29.7	1				
2.30– 2.39	17,478	3.1	63.5	2	10,717	2.2	60.7	1	11,041	2.1	33.0	1	11,182	2.5	32.2	1	517,033	25.3	56.7	3
2.40– 2.49	41,043	7.2	70.7	2	21,418	4.3	65.0	1	19,010	3.7	36.7	2	95,417	21.0	53.2	1	135,265	6.6	63.3	2
2.50– 2.59	18,438	3.3	74.0	2	21,121	4.3	69.3	3	145,154	27.6	64.3	4	58,082	12.8	66.0	3	73,751	3.6	66.9	2
2.60– 2.69	41,138	7.2	81.2	1	59,942	12.1	81.4	3	40,497	7.7	72.0	3	18,672	4.1	70.1	2	134,830	6.6	73.5	2
2.70– 2.79	43,952	7.7	88.9	3	67,408	13.6	95.0	2	23,260	4.6	76.6	2	5,643	1.2	71.3	1	261,189	12.7	86.2	4
2.80– 2.89	6,341	1.1	90.0	1	10,742	2.1	97.1	2	88,747	16.8	93.4	2	21,476	4.7	76.0	3	171,093	8.4	94.6	1
2.90– 2.99	50,025	8.8	98.8	2	4,207	0.9	98.0	1	20,758	3.9	97.3	2	53,730	11.8	87.8	3	17,748	.9	95.5	1
3.00– 3.09	7,199	1.2	100.0	2					10,990	2.1	99.4	1	47,442	10.4	98.2	2	92,547	4.5	100.0	3
3.10– 3.19					1,575	0.3	98.3	1												
3.20– 3.29									3,329	0.6	100.0	1								
3.30– 3.39													8,223	1.8	100.0	1				
3.70– 3.79					8,337	1.7	100.0	1												
Total	568,389	100.0	100.0	20	495,000	100.0	100.0	20	525,814	100.0	100.0	20	455,023	100.0	100.0	20	2,044,226	100.0	100.0	20
Average cost per ton	$2.27				$2.32				$2.46				$2.52				$2.39			

TABLE 25.—*Total revised supply cost, by quarterly and yearly periods for 1918, for 20 operators producing bituminous coal in district No. 2 of the State of Missouri.*

Per ton cost by $0.10 groupings.	January-March, 1918, inclusive.				April-June, 1918, inclusive.				July-September, 1918, inclusive.				October-December, 1918, inclusive.				Year, 1918.			
	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$0.00-$0.09	23,475	4.1	4.1	4	5,830	1.1	1.1	2	17,331	3.3	3.3	3	4,065	0.9	0.9	1	48,406	2.3	2.3	3
.10- .19	306,775	54.0	58.1	3	125,990	25.5	26.6	4	8,781	1.6	4.9	2	112,898	24.8	25.7	5	487,530	23.9	26.2	3
.20- .29	146,959	25.8	83.9	5	273,867	55.3	81.9	7	294,673	56.0	60.9	5	185,139	40.7	66.4	4	990,351	48.5	74.7	4
.30- .39	77,780	13.7	97.6	7	46,517	9.4	91.3	3	178,859	34.1	95.0	7	80,484	17.7	84.1	3	375,448	18.4	93.1	6
.40- .49	.....	.....	.....	.....	29,347	6.0	97.3	2	20,757	4.0	99.0	2	37,096	8.1	92.2	3	118,874	5.8	98.9	3
.50- .59	13,400	2.4	100.0	1	.....	.....	.....	.....	.....	.....	.....	.....	27,118	6.0	98.2	3	23,617	1.1	100.0	1
.60- .69	.....	.....	.....	.....	8,164	1.6	98.9	1	5,413	1.0	100.0	1	8,223	1.8	100.0	1	.....	.....	.....	.....
.70- .79	.....	.....	.....	.....	5,285	1.1	100.0	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total	568,389	100.0	100.0	20	495,000	100.0	100.0	20	525,814	100.0	100.0	20	455,023	100.0	100.0	20	2,044,226	100.0	100.0	20
Average cost per ton	$0.21				$0.24				$0.26				$0.27				$0.25			

TABLE 26.—*Total revised general expenses, by quarterly and yearly periods for 1918, for 20 operators producing bituminous coal in district No. 2 of the State of Missouri.*

Per ton cost by $0.10 groupings.	January-March, 1918, inclusive.				April-June, 1918, inclusive.				July-September, 1918, inclusive.				October-December, 1918, inclusive.				Year, 1918.			
	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$0.10-$0.19	351,438	61.8	61.8	6	33,136	6.7	6.7	3	48,235	9.1	9.1	4	36,313	8.0	8.0	3	145,935	7.0	7.0	3
.20- .29	93,750	16.4	78.2	7	329,665	66.5	73.2	7	354,087	67.5	76.6	10	248,231	54.6	62.6	4	1,282,708	62.9	69.9	6
.30- .39	29,438	5.3	83.5	3	27,710	5.7	78.9	4	21,391	4.1	80.7	2	70,369	15.4	78.0	7	246,618	12.0	81.9	7
.40- .49	58,580	10.3	93.8	2	78,816	16.0	94.9	4	72,106	13.6	94.3	2	74,601	16.4	94.4	4	252,605	12.4	94.3	2
.50- .59	35,183	6.2	100.0	2	4,255	.8	95.7	1												
.60- .69									29,995	5.7	100.0	2	3,823	.8	95.2	1	116,360	5.7	100.0	2
.70- .79					21,418	4.3	100.0	1					21,686	4.8	100.0	1				
Total	568,389	100.0	100.0	20	495,000	100.0	100.0	20	525,814	100.0	100.0	20	455,023	100.0	100.0	20	2,044,226	100.0	100.0	20
Average cost per ton	$0.26				$0.29				$0.29				$0.33				$0.28			

TABLE 27.—*Total revised f. o. b. mine cost, by quarterly and yearly periods for 1918, for 20 operators producing bituminous coal in district No. 2 of the State of Missouri.*

Per ton cost by $0.10 groupings.	January–March, 1918, inclusive.				April–June, 1918, inclusive.				July–September, 1918, inclusive.				October–December, 1918, inclusive.				Year, 1918.			
	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$2.10–$2.19	167,241	29.4	29.4	1																
2.20– 2.29																				
2.30– 2.39					144,939	29.3	29.3	1									559,258	27.4	27.4	1
2.40– 2.49									140,639	26.7	26.7	1								
2.50– 2.59	132,755	23.4	52.8	1									106,439	23.4	23.4	1				
2.60– 2.69	21,955	3.9	56.7	1	108,608	21.9	51.2	1												
2.70– 2.79	11,329	2.0	58.7	1													434,812	21.3	48.7	1
2.80– 2.89	16,274	2.9	61.6	2	18,630	3.8	55.0	1	31,683	6.0	32.7	2	95,417	21.0	44.4	1	81,512	4.0	52.7	1
2.90– 2.99	29,443	5.2	66.8	3	16,542	3.4	58.4	2					18,538	4.1	48.5	1	31,096	1.5	54.2	1
3.00– 3.09	7,651	1.3	68.1	1	8,486	1.7	60.1	1	117,110	22.2	54.9	4	46,575	10.2	58.7	3	60,204	3.0	57.2	2
3.10– 3.19	84,998	14.9	83.0	4	67,774	13.7	73.8	4	43,653	8.3	63.2	3	13,365	3.0	61.7	2	266,813	12.9	70.1	6
3.20– 3.29	36,118	6.4	89.4	2	38,900	7.8	81.6	3	21,391	4.1	67.3	2					161,388	7.9	78.0	1
3.30– 3.39					10,694	2.2	83.8	2	56,877	11.0	78.3	2	4,065	.9	62.6	1	153.248	7.5	85.5	2
3.40– 3.49	6,341	1.1	90.5	1	67,835	13.7	97.5	3	45,012	8.6	86.9	2	47,361	10.4	73.0	3	23,617	1.1	86.6	1
3.50– 3.59					4,255	.8	98.3	1	66,120	12.5	99.4	3	59,219	13.0	86.0	4	171,093	8.4	95.0	1
3.60– 3.69	40,884	7.1	97.6	2									8,379	1.8	87.8	1	47,707	2.4	97.4	2
3.70– 3.79													47,442	10.4	98.2	2	53,478	2.6	100.0	1
3.80– 3.89																				
3.90– 3.99	13,400	2.4	100.0	1																
4.00– 4.09									3,329	.6	100.0	1								
4.10– 4.19													8,223	1.8	100.0	1				
4.20– 4.29																				
4.30– 4.39																				
4.40– 4.49					8,337	1.7	100.0	1												
Total	568,389	100.0	100.0	20	495,000	100.0	100.0	20	525,814	100.0	100.0	20	455,023	100.0	100.0	20	2,044,226	100.0	100.0	20
Average cost per ton	$2.74				$2.85				$3.03				$3.12				$2.92			

TABLE 28.—*Total sales realization, by quarterly and yearly periods for 1918, for 20 operators producing bituminous coal in district No. 2 of the State of Missouri.*

Per ton by $0.10 groupings.	January-March, 1918, inclusive.				April-June, 1918, inclusive.				July-September, 1918, inclusive.				October-December, 1918, inclusive.				Year, 1918.			
	Sales tonnage (net tons).	Per cent of total	Accumulated per cent.	Number of operators by $0.10 groupings.	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$2.40-$2.49					144,976	29.3	29.3	1												
2.50- 2.59																				
2.60- 2.69	167,934	29.5	29.5	1													559,315	27.2	27.2	1
2.70- 2.79	132,696	23.3	52.8	1					139,866	26.2	26.2	1	106,539	23.4	23.4	1				
2.80- 2.89																				
2.90- 2.99					115,956	23.5	52.8	2												
3.00- 3.09																				
3.10- 3.19					1,575	.3	53.1	1									444,861	21.7	48.9	1
3.20- 3.29	45,958	8.1	60.9	3	8,495	1.7	54.8	1					13,395	2.9	26.3	1	31,107	1.5	50.4	1
3.30- 3.39	12,201	2.1	63.0	1	92,263	18.7	73.5	6	42,[illegible]7	8.0	34.2	3	26,396	5.8	32.1	2	177,634	8.6	59.0	3
3.40- 3.49	93,904	16.5	79.5	5	32,690	6.6	80.0	2	126,395	23.6	57.8	2	13,365	3.0	35.1	2	42,655	2.1	61.1	1
3.50- 3.59	22,750	4.1	83.6	3	15,017	3.1	83.2	2	26,081	4.8	62.6	3	10,293	2.3	37.4	1	228,699	11.2	72.3	4
3.60- 3.69	9,679	1.7	85.3	2	46,495	9.4	92.6	2	103,884	19.6	82.2	4	158,980	34.9	72.3	6	397,967	19.4	91.7	6
3.70- 3.79	36,625	6.4	91.7	1	36,632	7.4	100.0	3	93,445	17.4	99.6	6	116,084	25.5	97.8	6	170,680	8.3	100.0	3
3.80- 3.89	47,031	8.3	100.0	3					2,412	.4	100.0	1								
3.90- 3.99													10,179	2.2	100.0	1				
Total	568,778	100.0	100.0	20	494,099	100.0	100.0	20	534,810	100.0	100.0	20	455,231	100.0	100.0	20	2,052,918	100.0	100.0	20
Average per ton	$3.08				$3.07				$3.35				$3.44				$3.23			

TABLE 29.—*Claimed labor, supplies, general expenses, and total f. o. b. mine cost for the year 1918, for 24 operators producing bituminous coal in district No. 1 of the State of Missouri.*

Labor cost.					Supply cost.					General expenses.					Total f. o. b. mine cost.				
Per ton cost by $0.10 groupings.	Production tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Per ton cost by $0.10 groupings.	Production tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Per ton cost by $0.10 groupings.	Production tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Per ton cost by $0.10 groupings.	Production tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$1.10-$1.19	194,011	9.2	9.2	2	$0.10-$0.19	690,190	32.7	32.7	4	$0.20-$0.29	419,293	19.9	19.9	3	$2.10-$2.19	41,785	2.0	2.0	1
1.20- 1.29					.20- .29	220,500	10.4	43.1	3	.30- .39	530,726	25.2	45.1	3	2.20- 2.29	328,196	15.6	17.6	2
1.30- 1.39	84,099	4.0	13.2	2	.30- .39	306,684	14.6	57.7	3	.40- .49	267,735	12.7	57.8	3	2.30- 2.39	272,383	12.9	30.5	3
1.40- 1.49	461,842	22.0	35.2	6	.40- .49	41,785	2.0	59.7	1	.50- .59	307,995	14.6	72.4	3	2.40- 2.49	75,162	3.6	34.1	1
1.50- 1.59	129,031	6.1	41.3	3	.50- .59	282,821	13.5	73.2	5	.60- .69	364,244	17.3	89.7	6	2.50- 2.59	606,823	28.8	62.9	3
1.60- 1.69	141,938	6.7	48.0	1	.60- .69	148,822	7.0	80.2	4	.80- .89	78,915	3.8	93.5	3	2.60- 2.69	165,191	7.8	70.7	2
1.70- 1.79	230,997	10.9	58.9	3	.70- .79	262,132	12.4	92.6	2	.90- .99	34,810	1.6	95.1	1	2.70- 2.79	202,958	9.6	80.3	2
1.80- 1.89	151,619	7.2	66.1	2	.80- .89					1.00- 1.09					2.80- 2.89	196,142	9.4	89.7	4
1.90- 1.99					.90- .99	81,299	3.9	96.5	1	1.10- 1.19	73,247	3.5	98.6	1	2.90- 2.99	13,478	.6	90.3	1
2.00- 2.09	546,568	26.0	92.1	3	1.00- 1.09	73,247	3.5	100.0	1	1.20- 1.29	30,515	1.4	100.0	1	3.00- 3.09				
															3.10- 3.19	30,515	1.4	91.7	1
2.30- 2.39	122,877	5.8	97.9	1											3.20- 3.29	34,810	1.6	93.3	1
															3.30- 3.39	22,292	1.1	94.4	1
2.90- 2.99	44,498	2.1	100.0	1											3.40- 3.49				
															3.50- 3.59	44,498	2.1	96.5	1
															3.90- 3.99	73,247	3.5	100.0	1
$1.74	2,107,480	100.0	100.0	24	$0.42	2,107,480	100.0	100.0	24	$0.48	2,107,480	100.0	100.0	24	$2.64	2,107,480	100.0	100.0	24

TABLE 30.—*Claimed labor, supplies, general expenses, and total f. o. b. mine cost for the year 1918, for 20 operators producing bituminous coal in district No. 2 of the State of Missouri.*

Labor cost.					Supply cost.					General expenses.					Total f. o. b. mine cost.				
Per ton cost by $0.10 groupings.	Production tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Per ton cost by $0.10 groupings.	Production tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Per ton cost by $0.10 groupings.	Production tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Per ton cost by $0.10 groupings.	Production tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$1.80-$1.89	656,389	31.1	31.1	2	$0.00-$0.09	9,110	0.4	0.4	1	$0.00-$0.09	23,615	1.1	1.1	1	$2.30-$2.39	568,174	26.9	26.9	1
2.20- 2.29	497,078	23.6	54.7	2	.10- .19	50,191	2.4	2.8	2	.10- .19	577,284	27.3	28.4	2	2.80- 2.89	457,859	21.7	48.6	1
2.30- 2.39	44,325	2.1	56.8	1	.20- .29	1,070,671	50.7	53.5	4	.20- .29	248,404	11.7	40.1	5	2.90- 2.99	120,117	5.7	51.3	2
2.40- 2.49	170,145	8.0	64.8	3	.30- .39	598,521	28.3	81.8	5	.30- .39	795,164	37.8	77.9	6	3.00- 3.09	103,039	4.8	59.1	3
2.50- 2.59	65,123	3.0	67.8	2	.40- .49	295,587	14.1	95.9	6	.40- .49	218,668	10.3	88.2	2	3.10- 3.19	9,110	.4	59.5	1
2.60- 2.69	256,270	12.2	80.0	4	.50- .59	23,615	1.1	97.0	1	.50- .59	57,508	2.8	91.0	2	3.20- 3.29	137,142	6.5	66.0	2
2.70- 2.79	187,313	8.9	88.9	2	.60- .69	62,753	3.0	100.0	1	.60- .69	189,805	9.0	100.0	2	3.30- 3.39	269,594	12.8	78.8	3
2.80- 2.89	193,895	9.2	98.1	2											3.40- 3.49	157,965	7.5	86.3	4
2.90- 2.99	30,800	1.5	99.6	1											3.60- 3.69	224,695	10.7	97.0	2
3.00- 3.09	9,110	.4	100.0	1											3.70- 3.79	62,753	3.0	100.0	1
$2.31	2,110,448	100.0	100.0	20	$0.32	2,110,448	100.0	100.0	20	$0.34	2,110,448	100.0	100.0	20	$2.97	2,110,448	100.0	100.0	20

TABLE 31.—*Total revised labor cost, by quarterly and yearly periods for 1918, for 16 operators producing bituminous coal in Sebastian district of the State of Arkansas.*

Per ton cost by $0.10 groupings.	January–March, 1918, inclusive.				April–June, 1918, inclusive.				July–September, 1918, inclusive.				October–December, 1918, inclusive.				Year, 1918.			
	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$1.50–$1.59	4,638	1.2	1.2	1																
1.60– 1.69	12,274	3.2	4.4	1																
1.70– 1.79	6,577	1.7	6.1	1	37,538	10.5	10.5	3	26,193	6.4	6.4	2					30,550	2.1	2.1	1
1.80– 1.89	17,708	4.6	10.7	1	38,660	10.8	21.3	3	21,119	5.1	11.5	1	6,390	2.3	2.3	1	111,819	7.8	9.9	2
1.90– 1.99	216,966	56.5	67.2	4	61,901	17.3	38.6	1	16,223	3.9	15.4	1	20,512	7.3	9.6	2	50,881	3.5	13.4	1
2.00– 2.09	81,342	21.2	88.4	2	6,238	1.8	40.4	1	10,980	2.7	18.1	1					305,583	21.3	34.7	2
2.10– 2.19	11,853	3.1	91.5	2	168,642	47.2	87.6	2	270,930	65.8	83.9	3	66,048	23.6	33.2	2	676,926	47.3	82.0	2
2.20– 2.29					9,338	2.6	90.2	1	9,847	2.4	86.3	1	10,255	3.7	36.9	1	78,324	5.5	87.5	2
2.30– 2.39					13,513	3.8	94.0	1					16,071	5.7	42.6	2	33,342	2.3	89.8	1
2.40– 2.49	8,141	2.1	93.6	1					5,458	1.3	87.6	1	125,921	45.0	87.6	2	43,458	3.0	92.8	2
2.50– 2.59	7,694	2.0	95.6	1	15,138	4.2	98.2	1	28,278	6.8	94.4	3								
2.60– 2.69					3,744	1.1	99.3	1					13,986	5.0	92.6	2	59,332	4.2	97.0	2
2.70– 2.79					1,013	.3	99.6	1	12,794	3.1	97.5	1								
2.80– 2.89	9,647	2.5	98.1	1					8,028	1.9	99.4	1	11,234	4.0	96.6	1	43,324	3.0	100.0	1
2.90– 2.99	7,310	1.9	100.0	1									3,375	1.2	97.8	1				
3.00– 3.09																				
3.10– 3.19					1,487	.4	100.0	1												
3.20– 3.29																				
3.30– 3.39																				
3.40– 3.49									2,352	.6	100.0	1								
3.50– 3.59																				
3.60– 3.69													5,745	2.0	99.8	1				
5.00– 5.09													438	.2	100.0	1				
Total	384,150	100.0	100.0	16	357,212	100.0	100.0	16	412,202	100.0	100.0	16	279,975	100.0	100.0	16	1,433,539	100.0	100.0	16
Average cost per ton	$2.01				$2.06				$2.18				$2.37				$2.14			

TABLE 32.—*Total revised supply cost, by quarterly and yearly periods for 1918, for 16 operators producing bituminous coal in Sebastian district of the State of Arkansas.*

Per ton cost by $0.10 groupings.	January-March, 1918, inclusive.				April-June, 1918, inclusive.				July-September, 1918, inclusive.				October-December, inclusive.				Year, 1918.			
	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$0.00-$0.09	109,786	28.6	28.6	6	55,083	15.5	15.5	5	21,039	5.1	5.1	2	14,309	5.1	5.1	2	71,397	5.0	5.0	2
.10- .19	39,629	10.3	38.9	3	77,750	21.7	37.2	3	139,047	33.8	38.9	6	29,333	10.5	15.6	3	481,143	33.5	38.5	7
.20- .29	219,010	57.0	95.9	5	40,780	11.4	48.6	3	25,976	6.3	45.2	2	8,249	2.9	18.5	1	94,205	6.5	45.0	2
.30- .39					182,112	51.0	99.6	4	205,044	49.7	94.9	2	195,119	69.7	88.2	4	714,593	49.9	94.9	2
.40- .49	11,598	3.0	98.9	1					6,812	1.6	96.5	2	26,048	9.3	97.5	4	59,918	4.2	99.1	2
.50- .59	4,127	1.1	100.0	1					11,932	2.9	99.4	1					12,283	.9	100.0	1
.60- .69																				
.70- .79													6,479	2.3	99.8	1				
.80- .89																				
.90- .99					1,487	0.4	100.0	1	2,352	.6	100.0	1								
1.00- 1.09													438	.2	100.0	1				
Total	384,150	100.0	100.0	16	357,212	100.0	100.0	16	412,202	100.0	100.0	16	279,975	100.0	100.0	16	1,433,539	100.0	100.0	16
Average cost per ton		$0.17				$0.23				$0.27				$0.32				$0.25		

TABLE 33.—*Total revised general expenses, by quarterly and yearly periods for 1918, for 16 operators producing bituminous coal in Sebastian district of the State of Arkansas.*

Per ton cost by $0.10 groupings.	January-March, 1918, inclusive.				April-June, 1918, inclusive.				July-September, 1918, inclusive.				October-December, 1918, inclusive.				Year, 1918.			
	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$0.00-$0.09	12,830	3.3	3.3	1	20,312	5.7	5.7	2	20,827	5.1	5.1	2	17,070	6.1	6.1	2	78,733	5.5	5.5	2
.10- .19	103,417	27.0	30.3	4	92,928	26.0	31.7	3	104,601	25.4	30.5	3	8,249	2.9	9.0	1	372,011	25.9	31.4	3
.20- .29	200,196	52.1	82.4	2	192,801	53.9	85.6	3	190,052	46.1	76.6	1	75,559	27.0	36.0	3	667,544	46.6	78.0	1
.30- .39	10,705	2.8	85.2	2					67,400	16.3	92.9	6	120,872	43.2	79.2	1	116,379	8.1	86.1	3
.40- .49	21,921	5.7	90.9	2	10,255	2.9	88.5	2					27,997	10.0	89.2	3	93,714	6.5	92.6	3
.50- .59	11,215	2.9	93.8	2	21,467	6.0	94.5	2	10,578	2.6	95.5	1	14,191	5.1	94.3	2	35,858	2.5	95.1	1
.60- .69	8,141	2.1	95.9	1									5,745	2.0	96.3	1				
.70- .79																				
.80- .89					1,487	.4	94.9	1	5,458	1.3	96.8	1					26,834	1.9	97.0	2
.90- .99	4,127	1.1	97.0	1	4,492	1.3	96.2	1												
1.00- 1.09	11,598	3.0	100.0	1					11,932	2.9	99.7	1	3,375	1.2	97.5	1				
1.10- 1.19					12,457	3.5	99.7	1									42,466	3.0	100.0	1
1.20- 1.29													6,479	2.3	99.8	1				
1.30- 1.39									1,354	0.3	100.0	1								
1.40- 1.49																				
1.50- 1.59					1,013	.3	100.0	1												
2.80- 2.89													438	.2	100.0	1				
Total	384,150	100.0	100.0	16	357,212	100.0	100.0	16	412,202	100.0	100.0	16	279,975	100.0	100.0	16	1,433,539	100.0	100.0	16
Average cost per ton	$0.27				$0.29				$0.28				$0.34				$0.29			

TABLE 34.—*Total revised f. o. b. mine cost, by quarterly and yearly periods for 1918, for 16 operators producing bituminous coal in Sebastian district of the State of Arkansas.*

Per ton cost by $0.10 groupings.	January-March, 1918, inclusive.				April-June, 1918, inclusive.				July-September, 1918, inclusive.				October-December, 1918, inclusive.				Year, 1918.			
	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$1.90-$1.99					45,101	12.6	12.6	3												
2.00- 2.09	12,830	3.3	3.3	1					13,182	3.2	3.2	1								
2.10- 2.19	30,617	8.0	11.3	3	6,238	1.8	14.4	1	34,130	8.3	11.5	2					157,210	11.0	11.0	3
2.20- 2.29	88,595	23.1	34.4	3					10,980	2.7	14.2	1								
2.30- 2.39	192,470	50.1	84.5	1	68,412	19.1	33.5	2					20,512	7.3	7.3	2	30,550	2.1	13.1	1
2.40- 2.49	7,726	2.0	86.5	1					96,370	23.4	37.6	3					260,192	18.1	31.2	1
2.50- 2.59					12,129	3.4	36.9	1									84,223	5.8	27.0	2
2.60- 2.69	3,395	.9	87.4	1	164,150	45.9	82.8	1					67,810	24.2	31.5	2				
2.70- 2.79									200,630	48.7	86.3	2	7,507	2.7	34.2	1	667,544	46.6	83.6	1
2.80- 2.89					13,513	3.8	86.6	1					20,699	7.4	41.6	3				
2.90- 2.99	7,694	2.0	89.4	1	24,476	6.8	93.4	2					10,255	3.7	45.3	1	61,864	4.3	87.9	2
3.00- 3.09																				
3.10- 3.19					3,744	1.1	94.5	1					120,872	43.2	88.5	1	9,382	.7	88.6	1
3.20- 3.29									14,992	3.6	89.9	1	5,049	1.8	90.3	1	47,049	3.3	91.9	1
3.30- 3.39	17,788	4.6	94.0	2	12,457	3.5	98.0	1	20,822	5.0	94.9	2								
3.40- 3.49	18,908	4.9	98.9	2	4,492	1.3	99.3	1									43,324	3.0	94.9	1
3.50- 3.59	4,127	1.1	100.0	1													12,283	.9	95.8	1
3.60- 3.69													11,234	4.0	94.3	1				
3.70- 3.79									5,458	1.3	96.2	1					59,918	4.2	100.0	2
4.10- 4.19									11,932	2.9	99.1	1								
4.20- 4.29																				
4.30- 4.39									1,354	.3	99.4	1								
4.40- 4.49													3,375	1.2	95.5	1				
4.50- 4.59					1,013	.3	99.6	1												
4.60- 4.69													12,224	4.3	99.8	2				
4.70- 4.79																				
4.80- 4.89					1,487	.4	100.0	1	2,352	.6	100.0	1								
8.90- 8.99													438	.2	100.0	1				
Total	384,150	100.0	100.0	16	357,212	100.0	100.0	16	412,202	100.0	100.0	16	279,975	100.0	100.0	16	1,433,539	100.0	100.0	16
Average cost per ton		$2.45				$2.58				$2.73				$3.03				$2.68		

TABLE 35.—*Total sales realization, by quarterly and yearly periods for 1918, for 16 operators producing bituminous coal in Sebastian district of the State of Arkansas.*

Per ton by $0.10 groupings.	January–March, 1918, inclusive.				April–June, 1918, inclusive.				July–September, 1918, inclusive.				October–December, 1918, inclusive.				Year, 1918.			
	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$2.00–$2.09	17,708	4.6	4.6	1	19,986	5.6	5.6	1												
2.10–2.19	12,830	3.3	7.9	1	14,074	4.0	9.6	1	21,119	5.1	5.1	1	12,263	4.3	4.3	1	71,076	5.0	5.0	1
2.20–2.29	7,694	2.0	9.9	1	6,238	1.8	11.4	1									45,427	3.2	8.2	1
2.30–2.39	8,271	2.1	12.0	1	10,814	3.1	14.5	1	23,184	5.6	10.7	2	7,761	2.7	7.0	1	39,014	2.7	10.9	1
2.40–2.49													7,507	2.7	9.7	1				
2.50–2.59																	33,342	2.3	13.2	1
2.60–2.69					15,148	4.3	18.8	1												
2.70–2.79	69,744	18.0	30.0	1					26,070	6.3	17.0	2	9,563	3.4	13.1	1				
2.80–2.89	7,726	2.0	32.0	1																
2.90–2.99	203,210	52.5	84.5	2																
3.00–3.09					161,578	45.6	64.4	1												
3.10–3.19					71,250	20.0	84.4	2												
3.20–3.29	6,577	1.7	86.2	1													76,887	5.3	18.5	2
3.30–3.39					17,257	4.9	89.3	2					7,041	2.5	15.6	2	715,749	49.9	68.4	3
3.40–3.49	28,003	7.3	93.5	3	13,616	3.8	93.1	2	1,272	.3	17.3	1	5,049	1.8	17.4	1	260,219	18.1	86.5	1
3.50–3.59	10,705	2.8	96.3	2	17,900	5.1	98.2	3									76,938	5.4	91.9	3
3.60–3.69	14,284	3.7	100.0	2					36,444	8.8	26.1	4	3,051	1.1	18.5	1	42,457	2.9	94.8	1
3.70–3.79									267,751	64.7	90.8	3	29,305	10.4	28.9	3	45,037	3.1	97.9	1
3.80–3.89					6,511	1.8	100.0	1	11,932	2.9	93.7	1	6,479	2.3	31.2	1				
3.90–3.99									12,776	3.1	96.8	1	7,467	2.6	33.8	1	30,550	2.1	100.0	1
4.00–4.09									13,011	3.2	100.0	1	128,272	45.5	79.3	2				
4.10–4.19													58,255	20.7	100.0	1				
Total	386,752	100.0	100.0	16	354,372	100.0	100.0	16	413,559	100.0	100.0	16	282,013	100.0	100.0	16	1,436,696	100.0	100.0	16
Average per ton	$2.87				$3.02				$3.53				$3.77				$3.27			

TABLE 36.—*Claimed labor, supplies, general expenses, and total f. o. b. mine cost for the year 1918, for 16 operators producing bituminous coal in Sebastian district of the State of Arkansas.*

Labor cost.					Supply cost.					General expenses.					Total f. o. b. mine cost.				
Per ton cost by $0.10 groupings.	Production tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Per ton cost by $0.10 groupings.	Production tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Per ton cost by $0.10 groupings.	Production tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Per ton cost by $0.10 groupings.	Production tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$1.70–$1.79	30,692	2.1	2.1	1	$0.10–$0.19	484,164	32.9	32.9	7	$0.00–$0.09	80,883	5.5	5.5	2	$2.10–$2.19	117,995	8.0	8.0	2
1.80– 1.89	112,097	7.6	9.7	2	.20– .29	126,551	8.6	41.5	3	.10– .19	112,097	7.6	13.1	2	2.20– 2.29	40,743	2.8	10.8	1
1.90– 1.99	51,566	3.5	13.2	1	.30– .39	95,859	6.5	48.0	2	.20– .29	690,881	46.9	60.0	1	2.30– 2.39	30,692	2.1	12.9	1
2.00– 2.09	998,933	67.9	81.1	3	.50– .59	733,652	49.8	97.8	2	.30– .39	336,340	22.9	82.9	3	2.50– 2.59	295,653	20.1	33.0	2
2.10– 2.19	9,382	.6	81.7	1	.60– .69	31,104	2.2	100.0	2	.40– .49	79,170	5.4	88.3	2	2.70– 2.79	51,566	3.5	36.5	1
2.20– 2.29	132,580	9.0	90.7	4	.....	.....	.....	.....	.....	.50– .59	64,239	4.4	92.7	2	2.80– 2.89	718,429	48.8	85.3	2
2.30– 2.39	27,548	1.9	92.6	1	.....	.....	.....	.....	.....	.90– .99	46,518	3.1	95.8	2	3.10– 3.19	9,382	.6	85.9	1
2.50– 2.59	108,532	7.4	100.0	3	.....	.....	.....	.....	.....	1.10– 1.19	61,202	4.2	100.0	2	3.20– 3.29	47,381	3.2	89.1	1
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3.30– 3.39	85,614	5.8	94.9	2
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3.70– 3.79	12,673	.9	95.8	1
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3.90– 3.99	42,771	2.9	98.7	1
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4.00– 4.09	18,431	1.3	100.0	1
$2.09	1,471,330	100.0	100.0	16	$0.36	1,471,330	100.0	100.0	16	$0.34	1,471,330	100.0	100.0	16	$2.79	1,471,330	100.0	100.0	16

TABLE 37.—*Total revised labor cost, by quarterly and yearly periods for 1918, for 8 operators producing bituminous coal in McAlester Vein district of the State of Oklahoma.*

Per ton cost by $0.10 groupings.	January–March, 1918, inclusive.				April–June, 1918, inclusive.				July–September, 1918, inclusive.				October–December, 1918, inclusive.				Year, 1918.			
	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$2.50–$2.59	2,999	1.7	1.7	1																
2.60– 2.69					2,406	1.3	1.3	1					3,280	2.3	2.3	1	11,678	1.7	1.7	1
2.70– 2.79									40,879	21.5	21.5	2								
2.80– 2.89					41,782	22.9	24.2	2	54,563	28.8	50.3	1					127,644	18.5	20.2	1
2.90– 2.99	59,263	33.8	35.5	2	48,386	26.6	50.8	1					24,410	17.3	19.6	1	182,584	26.5	46.7	1
3.00– 3.09	41,673	23.7	59.2	1					29,638	15.6	65.9	2	63,052	44.5	64.1	2	90,769	13.2	59.9	1
3.10– 3.19	30,198	17.2	76.4	2	45,248	24.8	75.6	2									112,681	16.4	76.3	2
3.20– 3.29	29,123	16.6	93.0	1																
3.30– 3.39	12,391	7.0	100.0	1	12,297	6.8	82.4	1	35,204	18.6	84.5	2	14,617	10.4	74.5	1	54,662	7.9	84.2	1
3.40– 3.49					32,129	17.6	100.0	1	29,330	15.5	100.0	1	14,312	10.1	84.6	1	108,968	15.8	100.0	1
4.10– 4.19													18,386	13.0	97.6	1				
4.50– 4.59													3,420	2.4	100.0	1				
Total	175,647	100.0	100.0	8	182,248	100.0	100.0	8	189,614	100.0	100.0	8	141,477	100.0	100.0	8	688,986	100.0	100.0	8
Average cost per ton	$3.06				$3.08				$3.05				$3.28				$3.11			

TABLE 38.—*Total revised supply cost, by quarterly and yearly periods for 1918, for 8 operators producing bituminous coal in McAlester Vein district of the State of Oklahoma.*

Per ton cost by $0.10 groupings.	January-March, 1918, inclusive.				April-June, 1918, inclusive.				July-September, 1918, inclusive.				October-December, 1918, inclusive.				Year, 1918.			
	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$0.10-$0.19	12,555	7.1	7.1	2	10,948	6.0	6.0	2												
.20- .29	27,155	15.5	22.6	1	23,409	12.8	18.8	1	2,993	1.5	1.5	1	3,280	2.3	2.3	1	39,636	5.8	5.8	2
.30- .39	61,231	34.9	57.5	2					64,173	33.9	35.4	3					212,367	30.8	36.6	2
.40- .49	62,315	35.5	93.0	2	65,369	35.8	54.6	2	15,357	8.1	43.5	1	49,500	35.0	37.3	2	199,737	29.0	65.6	2
.50- .59					82,522	45.4	100.0	3	107,091	56.5	100.0	3	33,003	23.4	60.7	2	237,246	34.4	100.0	2
.60- .69													37,962	26.8	87.5	1				
.70- .79	12,391	7.0	100.0	1									17,732	12.5	100.0	2				
Total	175,647	100.0	100.0	8	182,248	100.0	100.0	8	189,614	100.0	100.0	8	141,477	100.0	100.0	8	688,986	100.0	100.0	8
Average cost per ton	$0.38				$0.44				$0.45				$0.57				$0.45			

TABLE 39.—*Total revised general expenses, by quarterly and yearly periods for 1918, for 8 operators producing bituminous coal in McAlester Vein district of the State of Oklahoma.*

Per ton cost by $0.10 groupings.	January-March, 1918, inclusive.				April-June, 1918, inclusive.				July-September, 1918, inclusive.				October-December, 1918, inclusive.				Year, 1918.			
	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$0.20-$0.29	56,278	32.1	32.1	2	32,129	17.6	17.6	1					18,386	13.0	13.0	1	108,968	15.8	15.8	1
.30- .39	103,979	59.2	91.3	4	126,874	69.6	87.2	4	164,824	87.0	87.0	5	63,052	44.5	57.5	2	485,720	70.5	86.3	4
.40- .49	12,391	7.0	98.3	1	20,839	11.5	98.7	2	15,357	8.1	95.1	1	24,410	17.3	74.8	1	54,662	7.9	94.2	1
.50- .59													28,929	20.5	95.3	2	27,958	4.1	98.3	1
.60- .69	2,999	1.7	100.0	1	2,406	1.3	100.0	1	9,433	4.9	100.0	2	3,280	2.3	97.6	1	11,678	1.7	100.0	1
.70- .79																				
.80- .89																				
.90- .99																				
1.00- 1.09													3,420	2.4	100.0	1				
Total	175,647	100.0	100.0	8	182,248	100.0	100.0	8	189,614	100.0	100.0	8	141,477	100.0	100.0	8	688,986	100.0	100.0	8
Average cost per ton	$0.33				$0.34				$0.35				$0.41				$0.36			

TABLE 40.—*Total revised f. o. b. mine cost, by quarterly and yearly periods for 1918, for 8 operators producing bituminous coal in McAlester Vein district of the State of Oklahoma.*

Per ton cost by $0.10 groupings.	January-March, 1918, inclusive.				April-June, 1918, inclusive.				July-September, 1918, inclusive.				October-December, 1918, inclusive.				Year, 1918.			
	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$3.30-$3.39	2,999	1.7	1.7	1					37,886	20.0	20.0	1								
3.40- 3.49	27,155	15.5	17.2	1	10,948	6.0	6.0	2												
3.50- 3.59					33,240	18.2	24.2	1					3,280	2.3	2.3	1	139,322	20.2	20.2	2
3.60- 3.69	41,664	23.7	40.9	2	23,409	12.8	37.0	1	57,556	30.3	50.3	2								
3.70- 3.79																				
3.80- 3.89	70,796	40.3	81.2	2	48,386	26.6	63.6	1					25,090	17.7	20.0	1	267,307	38.8	59.0	2
3.90- 3.99	20,642	11.8	93.0	1					23,198	12.2	62.5	1	24,410	17.3	37.3	1	118,727	17.3	76.3	2
4.00- 4.09					53,968	29.6	93.2	2	26,287	13.9	76.4	2	37,962	26.8	64.1	1				
4.10- 4.19																				
4.20- 4.29									15,357	8.1	84.5	1					108,968	15.8	92.1	1
4.30- 4.39					12,297	6.8	100.0	1	29,330	15.5	100.0	1					54,662	7.9	100.0	1
4.40- 4.49	12,391	7.0	100.0	1									14,617	10.4	74.5	1				
4.50- 4.59																				
4.60- 4.69																				
4.70- 4.79													14,312	10.1	84.6	1				
4.80- 4.89																				
4.90- 4.99													18,386	13.0	97.6	1				
6.30- 6.39													3,420	2.4	100.0	1				
Total	175,647	100.0	100.0	8	182,248	100.0	100.0	8	189,614	100.0	100.0	8	141,477	100.0	100.0	8	688,986	100.0	100.0	8
Average cost per ton	$3.77				$3.86				$3.85				$4.26				$3.92			

TABLE 41.—*Total sales realization, by quarterly and yearly periods for 1918, for 8 operators producing bituminous coal in McAlester Vein district of the State of Oklahoma.*

Per ton by $0.10 groupings.	January–March, 1918, inclusive.				April–June, 1918, inclusive.				July–September, 1918, inclusive.				October–December, 1918, inclusive.				Year, 1918.			
	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$3.90–$3.99					2,402	1.3	1.3	1												
4.00– 4.09	2,967	1.7	1.7	1	66,170	36.0	37.3	2					3,420	2.4	2.4	1				
4.10– 4.19	29,007	16.9	18.6	1	12,570	6.8	44.1	1									11,499	1.7	1.7	1
4.20– 4.29	26,382	15.4	34.0	1	32,515	17.8	61.9	2	29,207	15.4	15.4	1					108,635	15.8	17.5	1
4.30– 4.39	12,312	7.2	41.2	1	48,386	26.4	88.3	1	33,687	17.8	33.2	3	3,208	2.3	4.7	1	210,990	30.8	48.3	3
4.40– 4.49	101,123	58.8	100.0	4	21,511	11.7	100.0	1	53,447	28.2	61.4	2	38,248	27.2	31.9	2	171,842	25.1	73.4	2
4.50– 4.59													24,423	17.4	49.3	1	182,584	26.6	100.0	1
4.60– 4.69									54,563	28.8	90.2	1	15,237	10.8	60.1	1				
4.70– 4.79																				
4.80– 4.89									18,596	9.8	100.0	1	37,962	27.0	87.1	1				
4.90– 4.99													18,207	12.9	100.0	1				
Total	171,791	100.0	100.0	8	183,554	100.0	100.0	8	189,500	100.0	100.0	8	140,705	100.0	100.0	8	685,550	100.0	100.0	8
Average per ton	$4.35				$4.22				$4.50				$4.64				$4.42			

TABLE 42.—*Total revised labor cost, by quarterly and yearly periods for 1918, for 35 operators producing bituminous coal in Eastern district of the State of Oklahoma.*

Per ton cost by $0.10 groupings.	January-March, 1918, inclusive.				April-June, 1918, inclusive.				July-September, 1918, inclusive.				October-December, 1918, inclusive.				Year, 1918.			
	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$1.00-$1.09					14,715	1.8	1.8	1												
1.10- 1.19																				
1.20- 1.29	14,505	1.6	1.6	1													52,409	1.6	1.6	1
1.30- 1.39									14,535	1.6	1.6	1	8,654	1.2	1.2	1				
1.70- 1.79	12,357	1.4	3.0	1																
1.80- 1.89	16,348	1.8	4.8	1	44,424	5.3	7.1	2	12,636	1.4	3.0	1								
1.90- 1.99	63,699	7.0	11.8	5	29,806	3.6	10.7	3	29,447	3.3	6.3	2					227,437	6.8	8.4	4
2.00- 2.09	15,345	1.7	13.5	2	14,012	1.7	12.4	1	57,493	6.5	12.8	4	22,992	3.3	4.5	2	50,569	1.5	9.9	1
2.10- 2.19	110,387	12.1	25.6	3	131,366	15.5	27.9	5	11,475	1.3	14.1	1	30,620	4.4	8.9	2	15,872	.5	10.4	1
2.20- 2.29	126,748	13.9	39.5	5	7,736	.9	28.8	1	69,461	7.8	21.9	4	7,187	1.0	9.9	2	513,816	15.4	25.8	6
2.30- 2.39	198,972	22.1	61.6	4	193,820	23.1	51.9	5	253,981	28.5	50.4	6	13,285	1.9	11.8	1	840,975	25.3	51.1	6
2.40- 2.49	26,993	3.0	64.6	1	51,911	6.2	58.1	2	111,522	12.6	63.0	5	142,614	20.3	32.1	6	172,834	5.2	56.3	2
2.50- 2.59	30,095	3.3	67.9	2	120,039	14.3	72.4	5	30,339	3.4	66.4	1	106,439	15.2	47.3	2	366,879	10.9	67.2	4
2.60- 2.69	44,693	4.9	72.8	2	19,387	2.3	74.7	1	111,307	12.6	79.0	2	120,289	17.1	64.4	5				
2.70- 2.79	112,034	12.4	85.2	2	129,624	15.4	90.1	4	54,931	6.2	85.2	1	89,317	12.7	77.1	4	490,270	14.6	81.8	3
2.80- 2.89	9,688	1.0	86.2	1	5,614	.7	90.8	1	20,757	2.3	87.5	1	69,075	9.9	87.0	3	270,752	8.1	89.9	2
2.90- 2.99	98,079	10.8	97.0	3	74,121	8.8	99.6	3	30,364	3.4	90.9	2					40,506	1.2	91.1	1
3.00- 3.09									52,530	5.9	96.8	2					196,551	5.9	97.0	2
2.10- 3.19																	43,934	1.3	98.3	1
3.20- 3.29									12,778	1.4	98.2	1	14,871	2.1	89.1	1				
3.30- 3.39	15,628	1.7	98.7	1									52,655	7.6	96.7	3				
3.40- 3.49									15,716	1.8	100.0	1	7,014	1.0	97.7	1				
3.50- 3.59													4,371	.6	98.3	1	55,306	1.7	100.0	1
3.60- 3.69	12,442	1.3	100.0	1									11,748	1.7	100.0	1				
4.10- 4.19					3,119	.4	100.0	1												
Total	908,013	100.0	100.0	35	839,694	100.0	100.0	35	889,272	100.0	100.0	35	701,131	100.0	100.0	35	3,338,110	100.0	100.0	35
Average cost per ton	$2.41				$2.42				$2.48				$2.65				$2.49			

TABLE 43.—*Total revised supply cost, by quarterly and yearly periods for 1918, for 35 operators producing bituminous coal in Eastern district of the State of Oklahoma.*

Per ton cost by $0.10 groupings.	January-March, 1918, inclusive.				April-June, 1918, inclusive.				July-September, 1918, inclusive.				October-December, 1918, inclusive.				Year, 1918.			
	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$0.00-$0.09	48,343	5.3	5.3	3	16,832	2.0	2.0	1	14,977	1.7	1.7	1	17,811	2.6	2.6	1	66,422	2.0	2.0	1
.10- .19	271,451	29.9	35.2	9	443,000	52.8	54.8	18	156,146	17.5	19.2	8	19,494	2.8	5.4	2	1,066,345	31.9	33.9	9
.20- .29	419,399	46.3	81.5	12	118,407	14.1	68.9	4	319,806	36.1	55.3	13	200,713	28.9	34.3	12	913,965	27.3	61.2	11
.30- .39	134,338	14.7	96.2	8	194,144	23.1	92.0	5	332,126	37.3	92.6	8	334,752	46.3	80.6	9	965,842	28.9	90.1	8
.40- .49	28,177	3.1	99.3	2	22,598	2.7	94.7	3	43,092	4.8	97.4	3	67,907	9.6	90.2	5	179,336	5.4	95.5	3
.50- .59					3,689	.4	95.1	1	11,475	1.3	98.7	1	33,734	4.8	95.0	3	106,939	3.3	98.8	2
.60- .69													18,532	2.6	97.6	1				
.70- .79					7,736	.9	96.0	1					8,654	1.2	98.8	1	39,261	1.2	100.0	1
.80- .89					23,278	2.8	98.8	1												
.90- .99					10,010	1.2	100.0	1												
1.00- 1.09	6,305	0.7	100.0	1					11,650	1.3	100.0	1	8,534	1.2	100.0	1				
Total	908,013	100.0	100.0	35	839,694	100.0	100.0	35	889,272	100.0	100.0	35	701,131	100.0	100.0	35	3,338,110	100.0	100.0	35
Average cost per ton	$0.23				$0.26				$0.28				$0.33				$0.27			

TABLE 44.—*Total revised general expenses, by quarterly and yearly periods for 1918, for 35 operators producing bituminous coal in Eastern district of the State of Oklahoma.*

Per ton cost by $0.10 groupings.	January-March, 1918, inclusive.				April-June, 1918, inclusive.				July-September, 1918, inclusive.				October-December, 1918, inclusive.				Year, 1918.			
	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$0.20-$0.29	503,950	55.5	55.5	15	286,811	34.2	34.2	10	397,827	44.8	44.8	9	210,533	30.0	30.0	3	1,340,331	40.1	40.1	7
.30- .39	327,682	36.0	91.5	13	406,608	48.3	82.5	16	296,104	33.2	78.0	16	159,684	22.8	52.8	7	1,072,622	32.2	72.3	14
.40- .49	45,087	5.0	96.5	3	105,326	12.6	95.1	4	150,121	17.0	95.0	6	108,777	15.5	68.3	8	714,228	21.4	93.7	9
.50- .59	5,074	.6	97.1	1	29,337	3.5	98.6	2	28,302	3.1	98.1	2	113,734	16.1	84.4	10	126,585	3.8	97.5	3
.60- .69	21,933	2.4	99.5	2	4,079	.5	99.1	1	11,650	1.3	99.4	1	78,155	11.2	95.6	3				
.70- .79	4,287	.5	100.0	1	4,414	.5	99.6	1	5,268	.6	100.0	1	10,497	1.5	97.1	2	17,922	.5	98.0	1
.80- .89					3,119	.4	100.0	1												
.90- .99																				
1.00- 1.09																	66,422	2.0	100.0	1
1.10- 1.19																				
1.20- 1.29													1,940	.3	97.4	1				
3.20- 3.29													17,811	2.6	100.0	1				
Total	908,013	100.0	100.0	35	839,694	100.0	100.0	35	889,272	100.0	100.0	35	701,131	100.0	100.0	35	3,338,110	100.0	100.0	35
Average cost per ton	$0.30				$0.33				$0.33				$0.47				$0.35			

TABLE 45.—*Total revised f. o. b. mine cost, by quarterly and yearly periods for 1918, for 35 operators producing bituminous coal in Eastern district of the State of Oklahoma.*

Per ton cost by $0.10 groupings.	January-March, 1918, inclusive.				April-June, 1918, inclusive.				July-September, 1918, inclusive.				October-December, 1918, inclusive.				Year, 1918.			
	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$1.50-$1.59					14,715	1.8	1.8	1												
1.60- 1.69																				
1.70- 1.79	14,505	1.6	1.6	1																
1.80- 1.89									14,535	1.6	1.6	1					52,409	1.6	1.6	1
1.90- 1.99																				
2.00- 2.09																				
2.10- 2.19	16,348	1.8	3.4	1																
2.20- 2.29																				
2.30- 2.39	12,357	1.4	4.8	1	57,986	6.9	8.7	3												
2.40- 2.49	44,506	4.9	9.7	3					20,026	2.3	3.9	1					64,568	1.9	3.5	1
2.50- 2.59	16,802	1.8	11.5	1	16,244	2.0	10.7	2	51,243	5.8	9.7	4					180,752	5.4	8.9	3
2.60- 2.69	161,538	17.7	29.2	5	63,211	7.5	18.2	4	43,284	4.8	14.5	3	8,654	1.2	1.2	1	32,686	1.0	9.9	1
2.70- 2.79	37,587	4.1	33.3	3	95,310	11.3	29.5	2	34,551	3.9	18.4	1	22,992	3.3	4.5	2				
2.80- 2.89	196,932	21.9	55.2	4	64,481	7.7	37.2	2	15,086	1.7	20.1	1					247,840	7.4	17.3	3
2.90- 2.99					173,175	20.6	57.8	4	238,022	26.7	46.8	5	13,285	1.9	6.4	1	910,201	27.3	44.6	6
3.00- 3.09	104,282	11.5	66.7	4					74,770	8.4	55.2	2	142,290	20.2	26.6	4	277,187	8.3	52.9	2
3.10- 3.19	140,316	15.5	82.2	3	42,877	5.1	62.9	6	36,099	4.1	59.3	3	35,903	5.1	31.7	1	78,930	2.4	55.3	1
3.20- 3.29	7,526	.8	83.0	1	175,316	20.9	83.8	6	137,556	15.5	74.8	3					484,387	14.4	69.7	3
3.30- 3.39	20,698	2.3	85.3	2	52,651	6.2	90.0	2	75,037	8.5	83.3	2	214,749	30.7	62.4	6	373,215	11.3	81.0	4
3.40- 3.49	100,241	11.0	96.3	3									28,741	4.1	66.5	3	93,904	2.8	83.8	1
3.50- 3.59									57,798	6.5	89.8	3	47,753	6.8	73.3	2	314,156	9.4	93.2	4
3.60- 3.69					27,507	3.3	93.3	3	40,471	4.5	94.3	2	15,377	2.2	75.5	2	128,635	3.8	97.0	3
3.70- 3.79									10,650	1.2	95.5	1	31,563	4.5	80.0	2				
3.80- 3.89					37,702	4.5	97.8	3	12,778	1.4	96.9	1	31,354	4.4	84.4	3	43,934	1.3	98.3	1
3.90- 3.99													30,514	4.4	88.8	1				
4.00- 4.09									27,366	3.1	100.0	2	7,014	1.0	89.8	1				
4.10- 4.19					15,400	1.8	99.6	1					26,497	3.8	93.6	2				
4.20- 4.29	21,933	2.4	98.7	2													55,306	1.7	100.0	1
4.30- 4.39																				

TABLE 45.—*Total revised f. o. b. mine cost, by quarterly and yearly periods for 1918, for 35 operators producing bituminous coal in Eastern district of the State of Oklahoma*—Continued.

Per ton cost by $0.10 groupings.	January-March, 1918, inclusive.				April-June, 1918, inclusive.				July-September, 1918, inclusive.				October-December, 1918, inclusive.				Year, 1918.			
	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
4.40- 4.49	12,442	1.3	100.0	1									10,515	1.5	95.1	1				
4.50- 4.59													16,119	2.3	97.4	2				
5.00- 5.09													17,811	2.6	100.0	1				
5.40- 5.49					3,119	.4	100.0	1												
Total	908,013	100.0	100.0	35	839,694	100.0	100.0	35	889,272	100.0	100.0	35	701,131	100.0	100.0	35	3,338,110	100.0	100.0	35
Average cost per ton	$2.94				$3.01				$3.09				$3.45				$3.11			

TABLE 46.—*Total sales realization, by quarterly and yearly periods for 1918, for 35 operators producing bituminous coal in Eastern district of the State of Oklahoma.*

Per ton by $0.10 groupings.	January–March, 1918, inclusive.				April–June, 1918, inclusive.				July–September, 1918, inclusive.				October–December, 1918, inclusive.				Year, 1918.			
	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$2.60–$2.69	84,295	9.3	9.3	1									8,534	1.2	1.2	1				
2.70– 2.79					26,781	3.2	3.2	1												
2.80– 2.89					23,349	2.8	6.0	2	9,421	1.1	1.1	1	17,002	2.5	3.7	1				
2.90– 2.99	203,387	22.5	31.8	6	7,736	.9	6.9	1					5,247	.8	4.5	1	122,515	3.7	3.7	2
3.00– 3.09	39,969	4.4	36.2	2	70,283	8.3	15.2	4	32,880	3.7	4.8	2					30,126	.9	4.6	1
3.10– 3.19	36,703	4.1	40.3	3	17,689	2.1	17.3	1					41,413	6.0	10.5	2	143,301	4.3	8.9	2
3.20– 3.29	45,618	5.0	45.3	3	310,999	36.9	54.2	7	71,904	8.1	12.9	3	41,896	6.1	16.6	3	317,483	9.5	18.4	4
3.30– 3.39	68,684	7.6	52.9	4	46,754	5.6	59.8	4	148,096	16.7	29.6	3					782,600	23.5	41.9	4
3.40– 3.49	158,876	17.5	70.4	6	172,108	20.5	80.3	5	19,884	2.3	31.9	1	22,169	3.2	19.8	3	157,063	4.7	46.6	3
3.50– 3.59	106,805	11.8	82.2	2	75,656	9.0	89.3	5	23,296	2.6	34.5	2					435,192	13.1	59.7	5
3.60– 3.69					44,536	5.3	94.6	1	19,382	2.1	36.6	2					286,739	8.6	68.3	3
3.70– 3.79	40,374	4.5	86.7	1	14,984	1.8	96.4	2	138,287	15.6	52.2	5	29,571	4.2	24.0	3	502,290	15.2	83.5	4
3.80– 3.89									238,493	26.9	79.1	7	11,637	1.7	25.7	2	213,732	6.4	89.9	3
3.90– 3.99	19,041	2.1	88.8	1	26,039	3.1	99.5	1	128,911	14.6	93.7	5	111,927	16.1	41.8	5	226,418	6.8	96.7	2
4.00– 4.09	19,908	2.1	90.9	2									382,629	55.1	96.9	12				
4.10– 4.19	4,287	.5	91.4	1	4,414	.5	100.0	1	32,648	3.6	97.3	2								
4.20– 4.29	45,192	5.0	96.4	1					24,153	2.7	100.0	2								
4.30– 4.39	9,968	1.1	97.5	1													33,939	1.0	97.7	1
4.40– 4.49																	75,975	2.3	100.0	1
4.50– 4.59	22,317	2.5	100.0	1																
4.60– 4.69													5,521	.8	97.7	1				
5.20– 5.29													15,728	2.3	100.0	1				
Total	905,426	100.0	100.0	35	841,328	100.0	100.0	35	887,345	100.0	100.0	35	693,274	100.0	100.0	35	3,327,373	100.0	100.0	35
Average per ton	$3.33				$3.33				$3.61				$3.87				$3.53			

TABLE 47.—*Claimed labor, supplies, general expenses, and total f. o. b. mine cost for the year 1918, for 8 operators producing bituminous coal in McAlester Vein district of the State of Oklahoma.*

Labor cost.					Supply cost.					General expenses.					Total f. o. b. mine cost.				
Per ton cost by $0.10 groupings.	Production tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Per ton cost by $0.10 groupings.	Production tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Per ton cost by $0.10 groupings.	Production tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Per ton cost by $0.10 groupings.	Production tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$2.60–$2.69	149,567	20.2	20.2	2	$0.10–$0.19	11,678	1.6	1.6	1	$0.20–$0.29	120,321	16.2	16.2	1	$3.50–$3.59	137,889	18.6	18.6	1
2.70– 2.79	199,875	26.9	47.1	1	.40– .49	90,381	12.1	13.7	1	.30– .39	137,889	18.6	34.8	1	3.60– 3.69	11,678	1.6	20.2	1
2.80– 2.89	31,261	4.2	51.3	1	.50– .59	125,748	16.9	30.6	2	.40– .49	151,889	20.4	55.2	2	3.90– 3.99	94,487	12.7	32.9	1
2.90– 2.99	184,868	24.8	76.1	2	.60– .69	137,889	18.6	49.2	1	.50– .59	199,875	26.9	82.1	1	4.00– 4.09	199,875	26.9	59.8	1
3.10– 3.19	177,723	23.9	100.0	2	.70– .79	377,598	50.8	100.0	3	.60– .69	90,381	12.1	94.2	1	4.10– 4.19	90,381	12.1	71.9	1
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.70– .79	11,678	1.6	95.8	1	4.20– 4.29	120,321	16.2	88.1	1
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1.10– 1.19	31,261	4.2	100.0	1	4.30– 4.39	57,402	7.7	95.8	1
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4.50– 4.59	31,261	4.2	100.0	1
$2.88	743,294	100.0	100.0	8	$0.66	743,294	100.0	100.0	8	$0.49	743,294	100.0	100.0	8	$4.03	743,294	100.0	100.0	8

TABLE 48.—*Claimed labor, supplies, general expenses, and total f. o. b. mine cost for the year 1918, for 35 operators producing bituminous coal in Eastern district of the State of Oklahoma.*

Labor cost.					Supply cost.					General expenses.					Total f. o. b. mine cost.				
Per ton cost by $0.10 groupings.	Production tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Per ton cost by $0.10 groupings.	Production tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Per ton cost by $0.10 groupings.	Production tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Per ton cost by $0.10 groupings.	Production tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$1.10-$1.19	56,049	1.6	1.6	1	$0.00-$0.09	69,801	2.0	2.0	1	$0.20-$0.29	1,173,704	33.7	33.7	6	$1.90-$1.99	56,049	1.6	1.6	1
1.90- 1.99	139,901	4.2	5.8	3	.10- .19	362,390	10.5	12.5	3	.30- .39	894,129	25.6	59.3	9	2.50- 2.59	50,569	1.5	3.1	1
2.00- 2.09	138,228	4.0	9.8	2	.20- .29	355,719	10.4	22.9	6	.40- .49	723,441	20.9	80.2	10	2.60- 2.69	107,092	3.2	6.3	2
2.10- 2.19	85,673	2.5	12.3	2	.30- .39	939,214	26.9	49.8	10	.50- .59	105,564	3.1	83.3	2	2.70- 2.79	32,809	1.0	7.3	1
2.20- 2.29	1,257,152	36.1	48.4	9	.40- .49	1,184,360	34.0	83.8	7	.60- .69	162,011	4.7	88.0	2	2.80- 2.89	194,995	5.6	12.9	3
2.30- 2.39	443,388	12.8	61.2	5	.50- .59	281,537	8.0	91.8	4	.70- .79	329,848	9.5	97.5	4	2.90- 2.99	1,047,955	30.2	43.1	6
2.40- 2.49	124,053	3.5	64.7	2	.70- .79	284,041	8.2	100.0	4	.80- .89	18,582	.5	98.0	1	3.00- 3.09	105,471	3.0	46.1	1
2.50- 2.59	518,269	14.9	79.6	3						1.00- 1.09	69,801	2.0	100.0	1	3.10- 3.19	381,343	10.9	57.0	4
2.60- 2.69	203,395	5.8	85.4	1											3.20- 3.29	352,625	10.1	67.1	1
2.70- 2.79	116,101	3.3	88.7	2											3.30- 3.39	469,028	13.5	80.6	4
2.80- 2.89	285,766	8.2	96.9	3											3.40- 3.49	28,643	.8	81.4	1
3.00- 3.09	109,087	3.1	100.0	2											3.50- 3.59	156,258	4.4	85.8	3
															3.60- 3.69	72,755	2.1	87.9	1
															3.70- 3.79	81,686	2.3	90.2	1
															3.80- 3.89	103,825	3.0	93.2	3
															3.90- 3.99	172,854	5.0	98.2	1
															4.20- 4.29	63,105	1.8	100.0	1
$2.39	3,477,062	100.0	100.0	35	$0.39	3,477,062	100.0	100.0	35	$0.41	3,477,062	100.0	100.0	35	$3.19	3,477,062	100.0	100.0	35

TABLE 49.—*Total revised labor cost, by quarterly and yearly periods for 1918, for 14 operators producing lignite coal in Lignite district of the State of Texas.*

Per ton cost by $0.10 groupings.	January-March, 1918, inclusive.				April-June, 1918, inclusive.				July-September, 1918, inclusive.				October-December, 1918, inclusive.				Year, 1918.			
	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$0.50-$0.59	33,681	16.5	16.5	3																
.60- .69	120,080	58.9	75.4	5	119,818	66.1	66.1	6	53,728	24.2	24.2	4					177,582	22.0	22.0	4
.70- .79	21,849	10.7	86.1	2	21,823	12.1	78.2	3	52,328	23.6	47.8	1	95,755	48.0	48.0	5	419,627	52.1	74.1	4
.80- .89	9,897	4.8	90.9	1	19,306	10.7	88.9	2	69,401	31.4	79.2	4	53,632	26.9	74.9	3	90,312	11.2	85.3	2
.90- .99	6,732	3.3	94.2	1	7,593	4.2	93.1	1	22,783	10.2	89.4	2	26,593	13.3	88.2	3	35,482	4.4	89.7	1
1.00- 1.09	7,459	3.7	97.9	1	12,545	6.9	100.0	2	6,818	3.1	92.5	1	7,618	3.8	92.0	1	26,661	3.3	93.0	1
1.10- 1.19									12,628	5.7	98.2	1					56,614	7.0	100.0	2
1.20- 1.29	4,302	2.1	100.0	1					4,025	1.8	100.0	1								
1.30- 1.39													15,884	8.0	100.0	2				
Total	204,000	100.0	100.0	14	181,085	100.0	100.0	14	221,711	100.0	100.0	14	199,482	100.0	100.0	14	806,278	100.0	100.0	14
Average cost per ton	$0.68				$0.73				$0.80				$0.85				$0.76			

TABLE 50.—*Total revised supply cost, by quarterly and yearly periods for 1918, for 14 operators producing lignite coal in Lignite district of the State of Texas.*

Per ton cost by $0.10 groupings.	January-March, 1918, inclusive.				April-June, 1918, inclusive.				July-September, 1918, inclusive.				October-December, 1918, inclusive.				Year, 1918.			
	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$0.00-$0.09	164,893	80.8	80.8	9	122,830	67.8	67.8	7	131,440	59.3	59.3	7	120,265	60.3	60.3	7	472,036	58.5	58.5	7
.10- .19	25,183	12.4	93.2	3	45,180	25.0	92.8	5	90,271	40.7	100.0	7	55,604	27.9	88.2	4	316,550	39.3	97.8	6
.20- .29	13,924	6.8	100.0	2	8,999	5.0	97.8	1					23,613	11.8	100.0	3	17,692	2.2	100.0	1
.30- .39					4,076	2.2	100.0	1												
Total	204,000	100.0	100.0	14	181,085	100.0	100.0	14	221,711	100.0	100.0	14	199,482	100.0	100.0	14	806,278	100.0	100.0	14
Average cost per ton	$0.07				$0.09				$0.09				$0.10				$0.09			

TABLE 51.—*Total revised general expenses, by quarterly and yearly periods for 1918, for 14 operators producing lignite coal in Lignite district of the State of Texas.*

Per ton cost by $0.10 groupings.	January–March, 1918, inclusive.				April–June, 1918, inclusive.				July–September, 1918, inclusive.				October–December, 1918, inclusive.				Year, 1918.			
	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$0.00–$0.09	19,375	9.5	9.5	2	9,489	5.2	5.2	1	11,853	5.3	5.3	1	11,090	5.6	5.6	1	42,978	5.3	5.3	1
.10– .19	34,976	17.1	26.6	4	33,879	18.8	24.0	4	54,587	24.6	29.9	5	54,541	27.3	32.9	5	180,774	22.4	27.7	5
.20– .29	140,754	69.0	95.6	7	116,285	64.2	88.2	7	142,643	64.4	94.3	7	72,120	36.1	69.0	3	482,506	59.9	87.6	5
.30– .39	8,895	4.4	100.0	1	21,432	11.8	100.0	2					51,365	25.8	94.8	4	61,098	7.6	95.2	2
.40– .49													10,366	5.2	100.0	1	38,922	4.8	100.0	1
.50– .59																				
.60– .69									12,628	5.7	100.0	1								
Total	204,000	100.0	100.0	14	181,085	100.0	100.0	14	221,711	100.0	100.0	14	199,482	100.0	100.0	14	806,278	100.0	100.0	14
Average cost per ton	$0.21				$0.23				$0.23				$0.25				$0.23			

TABLE 52.—*Total revised f. o. b. mine cost, by quarterly and yearly periods for 1918, for 14 operators producing lignite coal in Lignite district of the State of Texas.*

Per ton cost by $0.10 groupings.	January-March, 1918, inclusive.				April-June, 1918, inclusive.				July-September, 1918, inclusive.				October-December, 1918, inclusive.				Year, 1918.			
	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$0.70–$0.79	10,546	5.2	5.2	1	9,489	5.2	5.2	1									42,978	5.3	5.3	1
.80– .89	82,374	40.3	45.5	4	9,577	5.3	10.5	1	21,132	9.5	9.5	2	11,080	5.6	5.6	1				
.90– .99	64,173	31.5	77.0	3	74,578	41.2	51.7	4	84,924	38.3	47.8	3	23,992	12.0	17.6	2	330,630	41.0	46.3	4
1.00– 1.09	18,792	9.2	86.2	2	31,170	17.2	68.9	1	18,533	8.4	56.2	1	76,076	38.1	55.7	3	232,999	28.9	75.2	3
1.10– 1.19	9,622	4.7	90.9	1	19,306	10.7	79.6	2	12,453	5.6	61.8	1	13,346	6.7	62.4	1	81,969	10.2	85.4	2
1.20– 1.29	6,782	3.3	94.2	1	24,420	13.5	93.1	3	51,102	23.0	84.8	3	23,810	11.8	74.2	2				
1.30– 1.39									10,096	4.6	89.4	1	27,966	14.0	88.2	2	34,437	4.3	89.7	1
1.40– 1.49	7,459	3.7	97.9	1	8,469	4.7	97.8	1	6,818	3.1	92.5	1					26,661	3.3	93.0	1
1.50– 1.59									4,025	1.8	94.3	1	7,618	3.8	92.0	1	17,692	2.2	95.2	1
1.60– 1.69	4,302	2.1	100.0	1	4,076	2.2	100.0	1												
1.70– 1.79													5,518	2.8	94.8	1	38,922	4.8	100.0	1
1.80– 1.89									12,628	5.7	100.0	1								
1.90– 1.99																				
2.00– 2.09													10,366	5.2	100.0	1				
Total	204,000	100.0	100.0	14	181,085	100.0	100.0	14	221,711	100.0	100.0	14	199,482	100.0	100.0	14	806,278	100.0	100.0	14
Average cost per ton	$0.96				$1.05				$1.12				$1.20				$1.08			

TABLE 53.—*Total sales realization, by quarterly and yearly periods for 1918, for 14 operators producing lignite coal in Lignite district of the State of Texas.*

Per ton by $0.10 groupings.	January-March, 1918, inclusive.				April-June, 1918, inclusive.				July-September, 1918, inclusive.				October-December, 1918, inclusive.				Year, 1918.			
	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$0.90-$0.99	6,732	3.3	3.3	1																
1.00- 1.09	50,410	24.7	28.0	1	7,593	4.2	4.2	1									26,661	3.3	3.3	1
1.10- 1.19	43,303	21.2	49.2	4	84,116	46.4	50.6	6					5,518	2.8	2.8	1				
1.20- 1.29	78,370	38.4	87.6	5	53,773	29.7	80.3	3	19,478	8.8	8.8	2					236,570	29.3	32.6	2
1.30- 1.39	20,883	10.3	97.9	2	28,066	15.5	95.8	3	52,328	23.6	32.4	1	17,834	8.9	11.7	2	313,917	39.0	71.6	5
1.40- 1.49	4,302	2.1	100.0	1	7,537	4.2	100.0	1	67,579	30.5	62.9	4	66,831	33.6	45.3	2	109,004	13.5	85.1	3
1.50- 1.59									47,104	21.2	84.1	4	29,725	14.9	60.2	3	73,359	9.1	94.2	2
1.60- 1.69									10,096	4.6	88.7	1	37,984	19.1	79.3	2	46,477	5.8	100.0	1
1.70- 1.79									12,628	5.7	94.4	1	25,942	13.0	92.3	3				
1.80- 1.89													15,403	7.7	100.0	1				
1.90- 1.99									12,453	5.6	100.0	1								
Total	204,000	100.0	100.0	14	181,085	100.0	100.0	14	221,666	100.0	100.0	14	199,237	100.0	100.0	14	805,988	100.0	100.0	14
Average per ton	$1.19				$1.21				$1.47				$1.55				$1.36			

TABLE 54.—*Claimed labor, supplies, general expenses, and total f. o. b. mine cost for the year 1918, for 14 operators producing lignite coal in Lignite district of the State of Texas.*

Labor cost.					Supply cost.					General expenses.					Total f. o. b. mine cost.				
Per ton cost by $0.10 groupings.	Production tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Per ton cost by $0.10 groupings.	Production tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Per ton cost by $0.10 groupings.	Production tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Per ton cost by $0.10 groupings.	Production tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$0.60-$0.69	301,289	36.8	36.8	5	$0.00-$0.09	390,765	47.7	47.7	5	$0.00-$0.09	43,782	5.3	5.3	1	$0.70-$0.79	43,782	5.3	5.3	1
.70- .79	299,926	36.7	73.5	3	.10- .19	349,652	42.8	90.5	7	.10- .19	123,515	15.0	20.3	3	.90- .99	227,207	27.8	33.1	2
.80- .89	92,659	11.3	84.8	2	.20- .29	77,243	9.5	100.0	2	.20- .29	358,162	43.9	64.2	5	1.00- 1.09	160,320	19.6	52.7	3
.90- .99	64,613	7.9	92.7	2	.....	.....	.....	.....	.....	.30- .39	127,817	15.7	79.9	3	1.10- 1.19	139,337	17.0	69.7	3
1.00- 1.09	41,481	5.1	97.8	1	.....	.....	.....	.....	.....	.40- .49	164,384	20.1	100.0	2	1.20- 1.29	122,903	15.0	84.7	1
1.10- 1.19	17,692	2.2	100.0	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1.30- 1.39	64,938	8.0	92.7	2
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1.50- 1.59	17,692	2.2	94.9	1
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1.70- 1.79	41,481	5.1	100.0	1
$0.75	817,660	100.0	100.0	14	$0.11	817,660	100.0	100.0	14	$0.26	817,660	100.0	100.0	14	$1.12	817,660	100.0	100.0	14

TABLE 55.—*Total revised labor cost, by quarterly and yearly periods for 1918, for 41 operators producing bituminous coal in Domestic district of the State of Colorado.*

Per ton cost by $0.10 groupings.	January-March, 1918, inclusive.				April-June, 1918, inclusive.				July-September, 1918, inclusive.				October-December, 1918, inclusive.				Year, 1918.			
	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$1.10-$1.19	6,645	0.5	0.5	1	3,168	0.2	0.2	1												
1.20- 1.29	96,518	7.4	7.9	2	27,061	1.9	2.1	1	46,000	3.1	3.1	2					334,394	6.1	6.1	2
1.30- 1.39	27,224	2.1	10.0	1	336,682	23.8	25.9	7	223,456	14.9	18.0	5	78,928	6.5	6.5	1	153,880	2.9	9.0	2
1.40- 1.49	87,967	6.7	16.7	3	65,857	4.6	30.5	3	224,398	15.0	33.0	5	86,302	7.1	13.6	3	1,013,957	18.7	27.7	7
1.50- 1.59	60,493	4.6	21.3	2	82,435	5.9	36.4	3	25,369	1.7	34.7	1	50,885	4.2	17.8	3	217,111	4.0	31.7	2
1.60- 1.69	203,189	15.4	36.7	8	92,865	6.5	42.9	3	123,936	8.2	42.9	4	27,156	2.2	20.0	1	38,622	.7	32.4	1
1.70- 1.79	557,399	42.7	79.4	3	49,395	3.5	46.4	2					88,834	7.4	27.4	5	682,202	12.5	44.9	6
1.80- 1.89	41,212	3.2	82.6	3	547,571	38.6	85.0	4	626,126	41.9	84.8	8	539,732	44.7	72.1	4	2,041,631	37.6	82.5	2
1.90- 1.99	17,386	1.3	83.9	1	14,625	1.0	86.0	1	24,221	1.6	86.4	2	118,129	9.8	81.9	5	96,986	1.8	84.3	2
2.00- 2.09	120,660	9.3	93.2	6	43,686	3.1	89.1	4	47,452	3.2	89.6	4	43,066	3.6	85.5	4	227,545	4.2	88.5	5
2.10- 2.19					86,479	6.1	95.2	4	77,570	5.2	94.8	1	103,654	8.6	94.1	4	294,678	5.4	93.9	1
2.20- 2.29	31,662	2.5	95.7	3									13,555	1.1	95.2	2	90,607	1.7	95.6	4
2.30- 2.39	16,331	1.3	97.0	1	34,820	2.4	97.6	3	7,817	.5	95.3	1	3,042	.3	95.5	1	39,650	.8	96.2	1
2.40- 2.49	8,645	.7	97.7	1	9,176	.7	98.3	2					8,398	.7	96.2	1	50,391	.9	97.1	1
2.50- 2.59					16,545	1.2	99.5	1	10,433	.7	96.0	2								
2.60- 2.69									17,336	1.2	97.2	1					62,436	1.2	98.3	1
2.70- 2.79	12,867	1.0	98.7	3					11,102	.7	97.9	1	8,825	.7	96.9	2	18,397	.3	98.6	1
2.80- 2.89									11,533	.8	98.7	1								
2.90- 2.99									5,228	.4	99.1	1	26,385	2.1	99.0	3	13,237	.2	98.8	1
3.00- 3.09	8,623	.7	99.4	1					10,168	.7	99.8	1								
3.10- 3.19	5,867	.4	99.8	1					3,681	.2	100.0	1					60,904	1.2	100.0	2
3.20- 3.29																				
3.30- 3.39																				
3.40- 3.49													4,872	.4	99.4	1				
3.50- 3.59																				
3.60- 3.69																				
3.70- 3.79													7,166	.6	100.0	1				
3.80- 3.89																				
3.90- 3.99					6,630	.5	100.0	2												
4.30- 4.39	3,195	.2	100.0	1																
Total	1,305,883	100.0	100.0	41	1,416,995	100.0	100.0	41	1,495,826	100.0	100.0	41	1,208,924	100.0	100.0	41	5,427,628	100.0	100.0	41
Average cost per ton	$1.74				$1.71				$1.78				$1.85				$1.75			

TABLE 56.—*Total revised supply cost, by quarterly and yearly periods for 1918, for 41 operators producing bituminous coal in Domestic district of the State of Colorado.*

Per ton cost by $0.10 groupings.	January–March, 1918, inclusive.				April–June, 1918, inclusive.				July–September, 1918, inclusive.				October–December, 1918, inclusive.				Year, 1918.			
	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$0.00–$0.09	13,163	1.0	1.0	3	99,005	6.9	6.9	4	7,648	0.5	0.5	2	6,720	0.6	0.6	2	42,419	0.8	0.8	3
.10– .19	327,069	24.9	25.9	10	399,993	28.3	35.2	12	384,742	25.8	26.3	10	131,055	10.8	11.4	6	1,049,938	19.4	20.2	7
.20– .29	704,113	54.0	79.9	12	670,679	47.3	82.5	10	802,853	53.7	80.0	12	188,811	15.5	26.9	8	3,236,640	59.6	79.8	14
.30– .39	210,225	16.1	96.0	11	190,428	13.4	95.9	8	190,634	12.6	92.6	10	564,199	46.7	73.6	7	670,317	12.3	92.1	9
.40– .49	16,331	1.3	97.3	1	32,461	2.3	98.2	3	79,091	5.4	98.0	4	185,155	15.4	89.0	7	296,061	5.2	97.3	4
.50– .59	15,216	1.2	98.5	2	1,291	.1	98.3	1	19,725	1.3	99.3	2	91,093	7.5	96.5	6	62,339	1.2	98.5	2
.60– .69	8,366	.6	99.1	1	6,547	.5	98.8	1	11,123	.7	100.0	1	29,853	2.5	99.0	3	79,914	1.5	100.0	2
.70– .79	11,400	.9	100.0	1																
.80– .89					11,252	.8	99.6	1					4,872	.4	99.4	1				
.90– .99																				
1.00– 1.09													7,166	.6	100.0	1				
1.10– 1.19					5,339	.4	100.0	1												
Total	1,305,883	100.0	100.0	41	1,416,995	100.0	100.0	41	1,495,826	100.0	100.0	41	1,208,924	100.0	100.0	41	5,427,628	100.0	100.0	41
Average cost per ton	$0.24				$0.24				$0.26				$0.36				$0.27			

TABLE 57.—*Total revised general expenses, by quarterly yearly and periods for 1918, for 41 operators producing bituminous coal in Domestic district of the State of Colorado.*

Per ton cost by $0.10 groupings.	January-March, 1918, inclusive.				April-June, 1918, inclusive.				July-September, 1918, inclusive.				October-December, 1918, inclusive.				Year, 1918.			
	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$0.10-$0.19	96,518	7.4	7.4	2	3,168	0.2	0.2	1	82,084	5.5	5.5	2	3,510	0.3	0.3	1	334,394	6.1	6.1	2
.20- .29	625,697	47.9	55.3	6	698,909	49.3	49.5	6	732,153	49.0	54.5	7	138,625	11.5	11.8	3	2,337,471	43.0	49.1	8
.30- .39	118,518	9.2	64.5	6	263,166	18.6	68.1	11	168,033	11.2	65.7	10	608,334	50.3	62.1	10	885,860	16.4	65.5	9
.40- .49	170,833	13.1	77.6	9	258,296	18.2	86.3	8	322,219	21.4	87.1	10	211,163	17.5	79.6	10	636,367	11.7	77.2	7
.50- .59	100,969	7.7	85.3	6	69,920	4.9	91.2	4	91,922	6.2	93.3	6	35,626	2.9	82.5	2	760,057	14.1	91.3	9
.60- .69	140,572	10.7	96.0	5	91,662	6.5	97.7	5	79,143	5.3	98.6	3	106,932	8.9	91.4	7	330,855	6.1	97.4	5
.70- .79	30,770	2.4	98.4	3	16,971	1.2	98.9	2	18,041	1.2	99.8	2	54,175	4.5	95.9	2	119,658	2.2	99.6	2
.80- .89	15,821	1.2	99.6	2	5,339	.4	99.3	1	2,231	.2	100.0	1	45,687	3.7	99.6	5	22,966	.4	100.0	2
.90- .99	6,185	.4	100.0	2	6,807	.5	99.8	1												
1.00- 1.09					1,466	.1	99.9	1					4,872	.4	100.0	1				
1.80- 1.89					1,291	.1	100.0	1												
Total	1,305,883	100.0	100.0	41	1,416,995	100.0	100.0	41	1,495,826	100.0	100.0	41	1,208,924	100.0	100.0	41	5,427,628	100.0	100.0	41
Average cost per ton	$0.37				$0.36				$0.36				$0.43				$0.38			

TABLE 58.—*Total revised f. o. b. mine cost, by quarterly and yearly periods for 1918, for 41 operators producing bituminous coal in Domestic district of the State of Colorado.*

Per ton cost by $0.10 groupings.	January-March, 1918, inclusive.				April-June, 1918, inclusive.				July-September, 1918, inclusive.				October-December, 1918, inclusive.				Year, 1918.			
	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$1.40-$1.49					3,168	0.2	0.2	1												
1.50- 1.59	96,518	7.4	7.4	2					3,078	0.2	0.2	1					13,284	0.2	0.2	1
1.60- 1.69					103,335	7.3	7.5	3	42,922	2.9	3.1	1					321,110	5.9	6.1	1
1.70- 1.79					74,735	5.3	12.8	1	197,444	13.2	16.3	3	82,438	6.8	6.8	2				
1.80- 1.89	33,869	2.6	10.0	2	127,624	9.0	21.8	2									150,253	2.8	8.9	2
1.90- 1.99					20,990	1.5	23.3	2	124,292	8.3	24.6	4	43,805	3.6	10.4	1	95,119	1.8	10.7	2
2.00- 2.09	55,283	4.2	14.2	3	131,196	9.3	32.6	4	126,118	8.4	33.0	3	42,665	3.5	13.9	2	565,034	10.4	21.1	3
2.10- 2.19	52,627	4.0	18.2	2					10,941	.7	33.7	1	26,562	2.2	16.1	1	396,053	7.3	28.4	3
2.20- 2.29	642,229	49.2	67.4	4	71,705	5.0	37.6	3	46,949	3.1	36.8	2								
2.30- 2.39	106,428	8.1	75.5	3	590,625	41.6	79.2	4	35,464	2.4	39.2	1	44,904	3.7	19.8	2	2,359,923	43.5	71.9	5
2.40- 2.49	26,754	2.0	77.5	2	55,574	3.9	83.1	1	533,524	35.7	74.9	3	30,537	2.5	22.3	3	181,927	3.3	75.2	1
2.50- 2.59	10,135	.8	78.3	1	14,625	1.0	84.1	1	123,689	8.3	83.2	4	466,931	38.7	61.0	2	115,602	2.1	77.3	1
2.60- 2.69	63,820	4.9	83.2	4					29,236	1.9	85.1	2	45,422	3.8	64.8	1	301,510	5.5	82.8	3
2.70- 2.79	21,997	1.7	84.9	3	5,108	.4	84.5	1	18,626	1.2	86.3	2	119,707	9.9	74.7	5	31,689	.6	83.4	1
2.80- 2.89	104,125	7.9	92.8	3	89,391	6.3	90.8	3	91,930	6.2	92.5	2	23,033	1.9	76.6	2	137,812	2.6	86.0	4
2.90- 2.99					29,919	2.1	92.9	3	10,641	.7	93.2	2	65,535	5.4	82.0	4	294,678	5.4	91.4	1
3.00- 3.09	7,896	.6	93.4	1	41,155	2.9	95.8	3	31,491	2.1	95.3	2	133,860	11.2	93.2	5	121,766	2.2	93.6	2
3.10- 3.19	11,400	.9	94.3	1	12,601	.9	96.7	2									93,194	1.8	95.4	3
3.20- 3.29	23,651	1.9	96.2	2	8,273	.6	97.3	2									93,700	1.7	97.1	3
3.30- 3.39	9,954	.8	97.0	1	27,797	2.0	99.3	2					15,662	1.3	94.5	1				
3.40- 3.49	2,802	.2	97.2	1					19,304	1.2	96.5	2	5,299	.4	94.9	1	62,436	1.2	98.3	1
3.50- 3.59	13,971	1.1	98.3	2	2,544	.2	99.5	1	17,336	1.2	97.7	1	3,524	.3	95.2	1				
3.60- 3.69									2,231	.2	97.9	1	17,091	1.4	96.6	2	18,397	.3	98.6	1
3.70- 3.79									21,701	1.5	99.4	2								
3.80- 3.89	4,739	.4	98.7	1					5,228	.4	99.8	1	3,526	.3	96.9	1				
3.90- 3.99	8,623	.7	99.4	1									12,224	1.0	97.9	1				
4.00- 4.09													6,317	.5	98.4	1	30,537	.6	99.2	1
4.10- 4.19	5,867	.4	99.8	1																
4.20- 4.29									3,681	.2	100.0	1	7,844	.6	99.0	1	13,237	.2	99.4	1
4.30- 4.39																				

TABLE 58.—*Total revised f. o. b. mine cost, by quarterly and yearly periods for 1918, for 41 operators producing bituminous coal in Domestic district of the State of Colorado*—Continued.

Per ton cost by $0.10 groupings.	January-March, 1918, inclusive.				April-June, 1918, inclusive.				July-September, 1918, inclusive.				October-December, 1918, inclusive.				Year, 1918.			
	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$4.40- 4.49																	30,367	.6	100.0	1
5.20- 5.29													4,872	.4	99.4	1				
5.30- 5.39																				
5.40- 5.49																				
5.50- 5.59													7,166	.6	100.0	1				
5.60- 5.69	3,195	.2	100.0	1																
5.70- 5.79																				
5.80- 5.89																				
5.90- 5.99					5,339	.4	99.9	1												
6.30- 6.39					1,291	.1	100.0	1												
Total	1,305,883	100.0	100.0	41	1,416,995	100.0	100.0	41	1,495,826	100.0	100.0	41	1,208,924	100.0	100.0	41	5,427,628	100.0	100.0	41
Average cost per ton		$2.35				$2.31				$2.35				$2.64				$2.40		

TABLE 59.—*Total sales realization, by quarterly and yearly periods for 1918, for 40 operators producing bituminous coal in Domestic district of the State of Colorado.*

Per ton by $0.10 groupings.	January–March, 1918, inclusive.				April–June, 1918, inclusive.				July–September, 1918, inclusive.				October–December, 1918, inclusive.				Year, 1918.			
	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$1.40–$1.49					3,168	0.2	0.2	1												
1.50– 1.59	3,528	0.3	0.3	1					3,078	0.2	0.2	1					13,284	0.3	0.3	1
1.60– 1.69																				
1.70– 1.79													3,510	0.3	0.3	1				
1.80– 1.89																				
1.90– 1.99																				
2.00– 2.09	4,885	.4	.7	1	6,068	.4	.6	1												
2.10– 2.19																	15,779	.3	.6	1
2.20– 2.29																				
2.30– 2.39	92,990	7.2	7 9.	1	37,766	2.7	3.3	1	3,261	.2	.4	1								
2.40– 2.49	15,652	1.2	9.1	1	97,887	6.9	10.2	3					17,748	1.5	1.8	1	61,871	1.2	1.8	1
2.50– 2.59	40,615	3.2	12.3	1	60,090	4.3	14.5	3	101,115	6.8	7.2	3	43,774	3.7	5.5	1	623,270	11.6	13.4	3
2.60– 2.69					96,027	6.9	21.4	6	22,149	1.5	8.7	2	122,817	10.3	15.8	4	49,547	.9	14.3	1
2.70– 2.79					678,136	48.5	69.9	7	160,101	10.9	19.6	3	51,076	4.4	20.2	2	220,587	4.1	18.4	2
2.80– 2.89	37,045	2.9	15.2	2	119,210	8.6	78.5	6	35,932	2.5	22.1	2	478,457	40.1	60.3	4	270,940	5.1	23.5	4
2.90– 2.99	169,554	13.3	28.5	6	164,872	11.8	90.3	4	638,272	43.1	65.2	6	33,427	2.8	63.1	3	2,365,828	44.2	67.7	5
3.00– 3.09	543,864	42.3	70.8	3	95,087	6.8	97.1	2	65,000	4.4	69.6	3	96,822	8.1	71.2	4	258,927	4.8	72.5	5
3.10– 3.19	39,291	3.1	73.9	3	23,342	1.7	98.8	2	199,387	13.6	83.2	5	88,152	7.4	78.6	5	294,717	5.5	78.0	1
3.20– 3.29	24,347	1.9	75.8	2					76,492	5.2	88.4	3	104,920	8.8	87.4	3	305,953	5.7	83.7	5
3.30– 3.39	76,981	6.0	81.8	2					40,801	2.8	91.2	1	38,987	3.3	90.7	1	432,807	8.1	91.8	2
3.40– 3.49	19,093	1.4	83.2	2					8,202	.6	91.8	1	13,401	1.1	91.8	2	31,719	.6	92.4	1
3.50– 3.59	67,285	5.2	88.4	6					55,951	3.8	95.6	1	18,641	1.5	93.3	3	251,803	4.7	97.1	2
3.60– 3.69	100,407	7.8	96.2	4					22,863	1.5	97.1	2	7,844	.7	94.0	1	80,880	1.5	98.6	2
3.70– 3.79	6,645	.5	96.7	1	4,513	.3	99.1	1	9,798	.7	97.8	2					19,406	.4	99.0	1
3.80– 3.89	37,729	2.9	99.6	3	11,291	.8	99.9	2	19,548	1.3	99.1	2	48,824	4.1	98.1	2				
3.90– 3.99													12,339	1.0	99.1	1	9,729	.2	99.2	1
4.00– 4.09																				
4.10– 4.19	4,759	.4	100.0	1					3,679	.2	99.3	1	3,522	.3	99.4	1	13,243	.2	99.4	1
4.20– 4.29																	30,537	.6	100.0	1

TABLE 59.—*Total sales realization, by quarterly and yearly periods for 1918, for 40 operators producing bituminous coal in Domestic district of the State of Colorado*—Continued.

Per ton by $0.10 groupings.	January-March, 1918, inclusive.				April-June, 1918, inclusive.				July-September, 1918, inclusive.				October-December, 1918, inclusive.				Year, 1918.			
	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$4.30- 4.39													7,166	.6	100.0	1				
4.80- 4.89									10,168	.7	100.0	1								
4.90- 4.99																				
5.00- 5.09					1,466	.1	100.0	1												
Total	1,284,670	100.0	100.0	40	1,398,943	100.0	100.0	40	1,475,787	100.0	100.0	40	1,191,427	100.0	100.0	40	5,350,827	100.0	100.0	40
Average per ton		$3.07				$2.76				$3.01				$3.00				$2.96		

TABLE 60.—*Total revised labor cost, by quarterly and yearly periods for 1918, for 14 operators producing bituminous coal in Trinidad district of the State of Colorado.*

Per ton cost by $0.10 groupings.	January–March, 1918, inclusive.				April–June, 1918, inclusive.				July–September, 1918, inclusive.				October–December, 1918, inclusive.				Year, 1918.			
	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$0.80–$0.89									15,448	1.6	1.6	1								
1.20– 1.29					5,670	0.6	0.6	1									40,057	1.1	1.1	1
1.30– 1.39	47,235	4.8	4.8	1	43,841	4.6	5.2	1	185,007	19.4	21.0	1								
1.40– 1.49	191,783	19.4	24.2	1	173,188	18.2	23.4	1					178,836	20.9	20.9	2	858,138	22.9	24.0	2
1.50– 1.59	120,607	12.2	36.4	4					88,367	9.3	30.3	2								
1.60– 1.69	559,051	56.6	93.0	2	610,761	64.4	87.8	3	588,900	61.7	92.0	3	31,873	3.7	24.6	1	2,541,699	67.8	91.8	4
1.70– 1.79					52,512	5.5	93.3	3					576,795	67.1	91.7	4	47,470	1.3	93.1	1
1.80– 1.89	17,009	1.7	94.7	1	19,246	2.0	95.3	1	8,157	.8	92.8	1					88,433	2.3	95.4	2
1.90– 1.99	15,470	1.6	96.3	1					41,538	4.4	97.2	3	37,347	4.3	96.0	3				
2.00– 2.09	18,435	1.8	98.1	2	33,893	3.6	98.9	3					11,292	1.3	97.3	1	94,945	2.5	97.9	2
2.10– 2.19	4,684	.5	98.6	1					8,751	.9	98.1	1					33,672	.9	98.8	1
2.20– 2.29	13,557	1.4	100.0	1					18,343	1.9	100.0	2					46,263	1.2	100.0	1
2.30– 2.39					9,986	1.1	100.0	1					7,625	.9	98.2	1				
2.40– 2.49													10,303	1.2	99.4	1				
2.50– 2.59													5,167	.6	100.0	1				
Total	987,831	100.0	100.0	14	949,097	100.0	100.0	14	954,511	100.0	100.0	14	859,238	100.0	100.0	14	3,750,677	100.0	100.0	14
Average cost per ton		$1.60				$1.61				$1.61				$1.69				$1.62		

TABLE 61.—*Total revised supply cost, by quarterly and yearly periods for 1918, for 14 operators producing bituminous coal in Trinidad district of the State of Colorado.*

Per ton cost by $0.10 groupings.	January–March, 1918, inclusive.				April–June, 1918, inclusive.				July–September, 1918, inclusive.				October–December, 1918, inclusive.				Year, 1918.			
	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$0.00–$0.09	47,235	4.8	4.8	1																
.10– .19	139,785	14.1	18.9	4	83,343	8.8	8.8	3	150,425	15.8	15.8	5					303,035	8.1	8.1	3
.20– .29	782,673	79.2	98.1	7	814,554	85.8	94.6	7	768,087	80.5	96.3	6	126,895	14.7	14.7	6	3,310,323	88.2	96.3	8
.30– .39	13,454	1.4	99.5	1	51,200	5.4	10 .0	4	28,160	2.9	99.2	2	714,297	83.2	97.9	6	137,319	3.7	100.0	3
.40– .49													18,046	2.1	100.0	2				
.50– .59	4,684	.5	100.0	1					7,839	0.8	100.0	1								
Total	987,831	100.0	100.0	14	949,097	100.0	100.0	14	954,511	100.0	100.0	14	859,238	100.0	100.0	14	3,750,677	100.0	100.0	14
Average cost per ton	$0.22				$0.26				$0.26				$0.32				$0.26			

TABLE 62.—*Total revised general expenses, by quarterly and yearly periods for 1918, for 14 operators producing bituminous coal in Trinidad district of the State of Colorado.*

Per ton cost by $0.10 groupings.	January-March, 1918, inclusive.				April-June, 1918, inclusive.				July-September, 1918, inclusive.				October-December, 1918, inclusive.				Year, 1918.			
	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$0.10-$0.19					19,246	2.0	2.0	1					11,292	1.3	1.3	1				
.20- .29	544,219	55.1	55.1	2	538,987	56.8	58.8	1	547,499	57.4	57.4	2					2,165,496	57.7	57.7	2
.30- .39	90,935	9.2	64.3	2	14,226	1.5	60.3	1	15,448	1.6	59.0	1	504,263	58.7	60.0	1	243,070	6.5	64.2	1
.40- .49	329,558	33.4	97.7	7	299,597	31.6	91.9	5	337,640	35.4	94.4	7	243,635	28.4	88.4	4	913,398	24.4	88.6	5
.50- .59	18,435	1.8	99.5	2	54,271	5.7	97.6	3	29,177	3.1	97.5	1	61,585	7.2	95.6	4	368,069	9.8	98.4	4
.60- .69					22,770	2.4	100.0	3	16,590	1.7	99.2	2	9,724	1.1	96.7	1	33,872	.9	99.3	1
.70- .79									8,157	.8	100.0	1					26,772	.7	100.0	1
.80- .89													11,358	1.3	98.0	2				
.90- .99													17,393	2.0	100.0	1				
1.00- 1.09	4,684	.5	100.0	1																
Total	987,831	100.0	100.0	14	949,097	100.0	100.0	14	954,511	100.0	100.0	14	859,238	100.0	100.0	14	3,750,677	100.0	100.0	14
Average cost per ton	$0.33				$0.35				$0.37				$0.40				$0.37			

TABLE 63.—*Total revised f. o. b. mine cost, by quarterly and yearly periods for 1918, for 14 operators producing bituminous coal in Trinidad district of the State of Colorado.*

Per ton cost by $0.10 groupings.	January-March, 1918, inclusive.				April-June, 1918, inclusive.				July-September, 1918, inclusive.				October-December, 1918, inclusive.				Year, 1918.			
	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$1.30-$1.39									15,448	1.6	1.6	1								
1.80- 1.89	47,235	4.8	4.8	1																
1.90- 1.99					43,841	4.6	4.6	1									40,057	1.1	1.1	1
2.00- 2.09	75,465	7.6	12.4	1																
2.10- 2.19	718,993	72.8	85.2	2	717,845	75.6	80.2	3	244,197	25.6	27.2	2					858,138	22.9	24.0	2
2.20- 2.29	48,697	4.9	90.1	3	19,246	2.0	82.2	1	571,244	59.9	87.1	2	170,514	19.9	19.9	1	2,346,905	62.6	86.6	2
2.30- 2.39	45,295	4.6	94.7	2	101,918	10.8	93.0	3	29,177	3.1	90.2	1	504,253	58.7	78.6	1	193,378	5.1	91.7	2
2.40- 2.49	15,470	1.6	96.3	1					31,770	3.3	93.5	2	94,032	10.9	89.5	3				
2.50- 2.59													20,273	2.4	91.9	2	110,547	3.0	94.7	2
2.60- 2.69					14,626	1.5	94.5	1	27,424	2.9	96.4	2								
2.70- 2.79					24,535	2.6	97.1	2	8,157	.8	97.2	1	13,765	1.6	93.5	1	59,316	1.6	96.3	1
2.80- 2.89	18,435	1.8	98.1	2	17,100	1.8	98.9	2					9,724	1.1	94.6	1	81,892	2.1	98.4	2
2.90- 2.99									8,751	.9	98.1	1					33,672	.9	99.3	1
3.00- 3.09	13,557	1.4	99.5	1	9,986	1.1	100.0	1	10,504	1.1	99.2	1	6,189	.7	95.3	1	26,772	.7	100.0	1
3.10- 3.19													27,696	3.2	98.5	2				
3.20- 3.29													7,625	.9	99.4	1				
3.30- 3.39																				
3.40- 3.49									7,839	.8	100.0	1								
3.50- 3.59																				
3.60- 3.69	4,684	.5	100.0	1									5,167	.6	100.0	1				
Total	987,831	100.0	100.0	14	949,097	100.0	100.0	14	954,511	100.0	100.0	14	859,238	100.0	100.0	14	3,750,677	100.0	100.0	14
Average cost per ton	$2.15				$2.22				$2.24				$2.41				$2.25			

TABLE 64.—*Total sales realization, by quarterly and yearly periods for 1918, for 13 operators producing bituminous coal in Trinidad district of the State of Colorado.*

Per ton by $0.10 groupings.	January–March, 1918, inclusive.				April–June, 1918, inclusive.				July–September, 1918, inclusive.				October–December, 1918, inclusive.				Year, 1918.			
	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$2.20–$2.29	154,019	28.7	28.7	1	5,670	1.1	1.1	1	352,389	47.3	47.3	1								
2.30– 2.39	161,084	30.0	58.7	1	326,387	62.9	64.0	2					383,627	53.3	53.3	1	1,045,128	41.5	41.5	1
2.40– 2.49					14,595	2.8	66.8	1	203,031	27.3	74.6	2					687,946	27.3	68.8	1
2.50– 2.59	25,808	4.8	63.5	2	17,238	3.3	70.1	2	31,444	4.3	78.9	3	36,012	5.1	58.4	4	129,763	5.2	74.0	3
2.60– 2.69					23,584	4.5	74.6	2	59,290	7.9	86.8	1	237,165	32.9	91.3	4	47,470	1.9	75.9	1
2.70– 2.79	24,071	4.5	68.0	2	91,766	17.7	92.3	3	22,865	3.1	89.9	2					304,378	12.0	87.9	2
2.80– 2.89	92,446	17.3	85.3	2	39,926	7.7	100.0	2	37,859	5.1	95.0	1	45,638	6.3	97.6	2	33,672	1.3	89.2	1
2.90– 2.99									16,960	2.3	97.3	1	7,216	1.0	98.6	1	226,126	9.0	93.2	3
3.00– 3.09	13,557	2.5	87.8	1					10,402	1.3	98.6	1								
3.10– 3.19	65,687	12.2	100.0	4													46,220	1.8	100.0	1
3.20– 3.29									10,669	1.4	100.0	1								
3.30– 3.39													10,358	1.4	100.0	1				
Total	536,672	100.0	100.0	13	519,166	100.0	100.0	13	744,849	100.0	100.0	13	720,016	100.0	100.0	13	2,520,703	100.0	100.0	13
Average per ton	$2.54				$2.47				$2.44				$2.52				$2.49			

TABLE 65.—*Total revised labor cost, by quarterly and yearly periods for 1918, for 15 operators producing lignite coal in Lignite district of the State of Colorado.*

Per ton cost by $0.10 groupings.	January-March, 1918, inclusive.				April-June, 1918, inclusive.				July-September, 1918, inclusive.				October-December, 1918, inclusive.				Year, 1918.			
	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$1.00-$1.09	16,515	2.5	2.5	1	7,278	1.6	1.6	1												
1.10- 1.19	79,765	11.8	14.3	2	58,301	13.2	14.8	2	62,480	12.0	12.0	3	56,088	10.0	10.0	1	248,879	11.3	11.3	2
1.20- 1.29													31,824	5.7	15.7	2	45,658	2.1	13.4	1
1.30- 1.39	383,590	57.0	71.3	3					16,114	3.1	15.1	1	8,625	1.6	17.3	1	64,170	2.9	16.3	1
1.40- 1.49	37,637	5.6	76.9	1	264,151	59.6	74.4	2	105,733	20.4	35.5	2	122,722	22.0	39.3	2	1,252,193	57.1	73.4	2
1.50- 1.59	19,096	2.8	79.7	1					242,381	46.6	82.1	3	245,303	43.8	83.1	3	48,198	2.2	75.6	1
1.60- 1.69	70,166	10.4	90.1	2	18,103	4.1	78.5	2									110,831	5.0	80.6	1
1.70- 1.79	44,553	6.7	96.8	3	21,552	4.9	83.4	2					48,899	8.7	91.8	3	263,590	12.0	92.6	4
1.80- 1.89					38,073	8.6	92.0	2	26,996	5.2	87.3	1	24,038	4.3	96.1	1	78,485	3.6	96.2	1
1.90- 1.99					10,734	2.4	94.4	1	42,505	8.2	95.5	3								
2.00- 2.09	15,669	2.3	99.1	1	12,185	2.8	97.2	1	18,369	3.5	99.0	1								
2.10- 2.19					8,782	2.0	99.2	1									63,331	2.9	99.1	1
2.20- 2.29	6,385	.9	100.0	1									17,108	3.1	99.2	1				
2.30- 2.39					3,767	.8	100.0	1												
2.40- 2.49																	19,525	.9	100.0	1
2.50- 2.59													4,211	.8	100.0	1				
2.60- 2.69									5,162	1.0	100.0	1								
Total	673,376	100.0	100.0	15	442,926	100.0	100.0	15	519,740	100.0	100.0	15	558,818	100.0	100.0	15	2,194,860	100.0	100.0	15
Average cost per ton	$1.39				$1.52				$1.56				$1.50				$1.49			

TABLE 66.—*Total revised supply cost, by quarterly and yearly periods for 1918, for 15 operators producing lignite coal in Lignite district of the State of Colorado.*

Per ton cost by $0.10 groupings.	January-March, 1918, inclusive.				April-June, 1918, inclusive.				July-September, 1918, inclusive.				October-December, 1918, inclusive.				Year, 1918.			
	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$0.00-$0.09	23,277	3.5	3.5	2	5,616	1.3	1.3	1	10,359	2.0	2.0	1	8,625	1.6	1.6	1	70,074	3.2	3.2	2
.10- .19	524,292	77.9	81.4	6	149,566	33.7	35.0	6	79,702	15.3	17.3	5	162,737	29.2	30.8	6	587,981	26.8	30.0	3
.20- .29	125,807	18.6	100.0	7	213,935	48.3	83.3	2	321,627	61.9	79.2	4	327,661	58.6	89.4	5	1,478,126	67.3	97.3	9
.30- .39	.....	.....	.....	.....	56,760	12.8	96.1	4	82,392	15.8	95.0	3	43,976	7.8	97.2	2	58,729	2.7	100.0	1
.40- .49	.....	.....	.....	.....	8,782	2.0	98.1	1	11,822	2.3	97.3	1	15,829	2.8	100.0	1	.....	.....	.....	.....
.50- .59	.....	.....	.....	.....	8,267	1.9	100.0	1	13,838	2.7	100.0	1	.....	.....	.....	.....	.....	.....	.....	.....
Total	673,376	100.0	100.0	15	442,926	100.0	100.0	15	519,740	100.0	100.0	15	558,818	100.0	100.0	15	2,194,860	100.0	100.0	15
Average cost per ton	$0.18				$0.22				$0.24				$0.22				$0.21			

TABLE 67.—*Total revised general expenses, by quarterly and yearly periods for 1918, for 15 operators producing lignite coal in Lignite district of the State of Colorado.*

Per ton cost by $0.10 groupings.	January-March, 1918, inclusive.				April-June, 1918, inclusive.				July-September, 1918, inclusive.				October-December, 1918, inclusive.				Year, 1918.			
	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$0.20-$0.29	74,457	11.1	11.1	2	62,191	14.0	14.0	3	70,490	13.5	13.5	3	69,946	12.5	12.5	2	248,879	11.3	11.3	2
.30- .39	473,047	70.2	81.3	7	28,121	6.4	20.4	2	177,243	34.1	47.6	5	178,642	32.0	44.5	5	1,506,377	68.7	80.0	6
.40- .49	76,568	11.3	92.6	4	277,375	62.6	83.0	3	211,602	40.7	88.3	2	268,433	47.9	92.4	4	177,055	8.0	88.0	2
.50- .59	49,304	7.4	100.0	2	33,364	7.5	90.5	3	23,050	4.5	92.8	3	9,134	1.7	94.1	2	148,328	6.8	94.8	4
.60- .69					18,165	4.1	94.6	3	10,359	2.0	94.8	1								
.70- .79									26,996	5.2	100.0	1					114,221	5.2	100.0	1
.80- .89					23,710	5.4	100.0	1					32,663	5.9	100.0	2				
Total	673,376	100.0	100.0	15	442,926	100.0	100.0	15	519,740	100.0	100.0	15	558,818	100.0	100.0	15	2,194,860	100.0	100.0	15
Average cost per ton	$0.37				$0.45				$0.40				$0.41				$0.40			

TABLE 68.—*Total revised f. o. b. mine cost, by quarterly and yearly periods for 1918, for 15 operators producing lignite coal in Lignite district of the State of Colorado.*

Per ton cost by $0.10 groupings.	January-March, 1918, inclusive.				April-June, 1918, inclusive.				July-September, 1918, inclusive.				October-December, 1918, inclusive.				Year, 1918.			
	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$1.40-$1.49	74,457	11.1	11.1	2					12,968	2.5	2.5	1								
1.50- 1.59					45,077	10.2	10.2	1					13,858	2.5	2.5	1	248,879	11.3	11.3	2
1.60- 1.69					7,278	1.6	11.8	1	39,153	7.5	10.0	1	56,088	10.0	12.5	1				
1.70- 1.79	21,823	3.2	14.3	1	13,224	3.0	14.8	1												
1.80- 1.89	383,590	57.0	71.3	3					10,359	2.0	12.0	1	17,966	3.2	15.7	1	45,658	2.1	13.4	1
1.90- 1.99									16,114	3.1	15.1	1	122,722	22.0	37.7	2	434,316	19.8	33.2	2
2.00- 2.09	37,637	5.6	76.9	1	62,401	14.1	28.9	1	93,911	18.1	33.2	1					882,047	40.2	73.4	1
2.10- 2.19	19,096	2.8	79.7	1	201,750	45.5	74.4	1	35,701	6.8	40.0	1	229,474	41.0	78.7	2	48,198	2.2	75.6	1
2.20- 2.29	52,697	7.8	87.5	2	9,836	2.2	76.6	1	218,502	42.1	82.1	3	8,625	1.6	80.3	1	110,831	5.0	80.6	1
2.30- 2.39	62,022	9.3	96.8	3	5,616	1.3	77.9	1									90,640	4.1	84.7	2
2.40- 2.49					15,936	3.6	81.5	1					41,598	7.4	87.7	3	78,485	3.6	88.3	1
2.50- 2.59	15,669	2.3	99.1	1	25,097	5.6	87.1	2	18,369	3.5	85.6	1	23,130	4.1	91.8	1	58,729	2.7	91.0	1
2.60- 2.69					12,185	2.8	89.9	1	28,667	5.5	91.1	2					63,331	2.9	93.9	1
2.70- 2.79					8,267	1.9	91.8	1									114,221	5.2	99.1	1
2.80- 2.89													17,108	3.1	94.9	1				
2.90- 2.99	6,385	.9	100.0	1					26,996	5.2	96.3	1	24,038	4.3	99.2	1				
3.00- 3.09					23,710	5.4	97.2	1	13,838	2.7	99.0	1								
3.10- 3.19					3,767	.8	98.0	1									19,525	.9	100.0	1
3.20- 3.29					8,782	2.0	100.0	1					4,211	.8	100.0	1				
3.30- 3.39									5,162	1.0	100.0	1								
Total	673,376	100.0	100.0	15	442,926	100.0	100.0	15	519,740	100.0	100.0	15	558,818	100.0	100.0	15	2,194,860	100.0	100.0	15
Average cost per ton	$1.94				$2.19				$2.20				$2.13				$2.10			

TABLE 69.—*Total sales realization, by quarterly and yearly periods for 1918, for 15 operators producing lignite coal in Lignite district of the State of Colorado.*

Per ton by $0.10 groupings.	January-March, 1918, inclusive.				April-June, 1918, inclusive.				July-September, 1918, inclusive.				October-December, 1918, inclusive.				Year, 1918.			
	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$1.80-$1.89	12,[illegible]18	1.9	1.9	1	9,836	2.2	2.2	1					13,822	2.5	2.5	1	48,198	2.2	2.2	1
1.90- 1.99					8,548	1.9	4.1	1					18,110	3.2	5.7	1				
2.00- 2.09									11,822	2.3	2.3	1	114,081	20.3	26.0	2				
2.10- 2.19	9,827	1.5	3.4	1	57,918	13.1	17.2	2	10,286	2.0	4.3	1	56,087	10.0	36.0	1	24,416	1.1	3.3	1
2.20- 2.29					5,616	1.3	18.5	1	65,288	12.7	17.0	3	41,490	7.3	43.3	2	306,801	13.9	17.2	3
2.30- 2.39	57,975	8.6	12.0	1	117,421	26.5	45.0	5	109,822	21.2	38.2	2					428,900	19.6	36.8	2
2.40- 2.49	133,894	20.0	32.0	3	213,955	48.2	93.2	2	39,751	7.7	45.9	2	220,886	39.4	82.7	2	50,619	2.3	39.1	1
2.50- 2.59	30,690	4.6	36.6	1	10,738	2.4	95.6	1	228,690	44.1	90.0	2	54,259	9.7	92.4	3	1,174,148	53.5	92.6	4
2.60- 2.69	345,076	51.3	87.9	4					18,340	3.5	93.5	1	17,217	3.1	95.5	1	63,490	2.9	95.5	1
2.70- 2.79	37,637	5.6	93.5	1	3,716	.8	96.4	1	28,339	5.5	99.0	2	21,076	3.8	99.3	1				
2.80- 2.89	15,773	2.3	95.8	1	15,908	3.6	100.0	1	5,212	1.0	100.0	1	4,210	.7	100.0	1	97,797	4.5	100.0	2
2.90- 2.99																				
3.00- 3.09	28,213	4.2	100.0	2																
Total	671,803	100.0	100.0	15	443,651	100.0	100.0	15	517,647	100.0	100.0	15	561,238	100.0	100.0	15	2,194,339	100.0	100.0	15
Average per ton	$2.60				$2.38				$2.47				$2.34				$2.46			

TABLE 70.—*Claimed labor, supplies, general expenses, and total f. o. b. mine cost for the year 1918, for 41 operators producing bituminous coal in Domestic district of the State of Colorado.*

Labor cost.					Supply cost.					General expenses.					Total f. o. b. mine cost.				
Per ton cost by $0.10 groupings.	Production tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Per ton cost by $0.10 groupings.	Production tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Per ton cost by $0.10 groupings.	Production tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Per ton cost by $0.10 groupings.	Production tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$1.20-$1.29	346,636	6.2	6.2	2	$0.00-$0.09	32,690	0.5	0.5	2	$0.00-$0.09	13,284	0.2	0.2	1	$1.40-$1.49	13,284	0.2	0.2	1
1.30- 1.39	153,880	2.7	8.9	2	.10- .19	312,028	5.6	6.1	3	.10- .19	333,352	6.0	6.2	1	1.60- 1.69	333,352	6.0	6.2	1
1.40- 1.49	1,166,999	20.9	29.8	8	.20- .29	1,331,873	23.9	30.0	11	.20- .29	78,119	1.4	7.6	2	1.80- 1.89	16,222	.3	6.5	1
1.50- 1.59	130,870	2.3	32.1	2	.30- .39	2,867,645	51.3	81.3	10	.30- .39	2,627,081	47.2	54.8	7	1.90- 1.99	153,880	2.7	9.2	2
1.60- 1.69	427,774	7.6	39.7	3	.40- .49	700,619	12.6	93.9	7	.40- .49	654,206	11.7	66.5	7	2.00- 2.09	245,432	4.4	13.6	2
1 70- 1.79	2,338,996	42.0	81.7	4	.50- .59	189,597	3.4	97.3	5	.50- .59	778,398	13.9	80.4	5	2.10- 2.19	327,023	5.9	19.5	2
1.80- 1.89	39,450	.7	82.4	1	.60- .69	151,599	2.7	100.0	3	.60- .69	510,529	9.1	89.5	9	2.20- 2.29	336,339	6.0	25.5	2
1.90- 1.99	295,012	5.3	87.7	6	.....	.....	.....	.....	.....	.70- .79	35,216	.6	90.1	1	2.30- 2.39	2,407,082	43.1	68.6	4
2.00- 2.09	381,943	6.9	94.6	3	.....	.....	.....	.....	.....	.80- .89	500,718	9.0	99.1	6	2.50- 2.59	262,270	4.7	73.3	2
2.10- 2.19	9,836	.2	94.8	1	.....	.....	.....	.....	.....	.90- .99	41,851	.7	99.8	1	2.60- 2.69	214,004	3.8	77.1	2
2.20- 2.29	44,852	.8	95.6	2	.....	.....	.....	.....	.....	1.00- 1.09	13,297	.2	100.0	1	2.70- 2.79	120,846	2.2	79.3	3
2.30- 2.39	84,508	1.5	97.1	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2.80- 2.89	315,687	5.7	85.0	4
2.40- 2.49	66,836	1.2	98.3	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3.00- 3.09	301,781	5.4	90.4	1
2.70- 2.79	53,613	.9	99.2	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3.10- 3.19	86,699	1.6	92.0	2
2.90- 2.99	13,297	.2	99.4	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3.20- 3.29	160,496	2.9	94.9	4
3.00- 3.09	31,549	.6	100.0	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3.40- 3.49	72,501	1.2	96.1	2
															3.50- 3.59	120,694	2.2	98.3	2
															3.70- 3.79	18,397	.3	98.6	1
															4.10- 4.19	66,765	1.2	99.8	2
															4.40- 4.49	13,297	.2	100.0	1
$1.70	5,586,051	100.0	100.0	41	$0.33	5,586,051	100.0	100.0	41	$0.44	5,586,051	100.0	100.0	41	$2.47	5,586,051	100.0	100.0	41

TABLE 61.—*Total revised supply cost, by quarterly and yearly periods for 1918, for 14 operators producing bituminous coal in Trinidad district of the State of Colorado.*

Per ton cost by $0.10 groupings.	January–March, 1918, inclusive.				April–June, 1918, inclusive.				July–September, 1918, inclusive.				October–December, 1918, inclusive.				Year, 1918.			
	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$0.00–$0.09	47,235	4.8	4.8	1																
.10– .19	139,785	14.1	18.9	4	83,343	8.8	8.8	3	150,425	15.8	15.8	5					303,035	8.1	8.1	3
.20– .29	782,673	79.2	98.1	7	814,554	85.8	94.6	7	768,087	80.5	96.3	6	126,895	14.7	14.7	6	3,310,323	88.2	96.3	8
.30– .39	13,454	1.4	99.5	1	51,200	5.4	10 .0	4	28,160	2.9	99.2	2	714,297	83.2	97.9	6	137,319	3.7	100.0	3
.40– .49													18,046	2.1	100.0	2				
.50– .59	4,684	.5	100.0	1					7,839	0.8	100.0	1								
Total	987,831	100.0	100.0	14	949,097	100.0	100.0	14	954,511	100.0	100.0	14	859,238	100.0	100.0	14	3,750,677	100.0	100.0	14
Average cost per ton	$0.22				$0.26				$0.26				$0.32				$0.26			

TABLE 62.—*Total revised general expenses, by quarterly and yearly periods for 1918, for 14 operators producing bituminous coal in Trinidad district of the State of Colorado.*

Per ton cost by $0.10 groupings.	January–March, 1918, inclusive.				April–June, 1918, inclusive.				July–September, 1918, inclusive.				October–December, 1918, inclusive.				Year, 1918.			
	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$0.10–$0.19					19,246	2.0	2.0	1					11,392	1.3	1.3	1				
.20– .29	544,219	55.1	55.1	2	538,987	56.8	58.8	1	547,499	57.4	57.4	2					2,165,496	57.7	57.7	2
.30– .39	90,935	9.2	64.3	2	14,226	1.5	60.3	1	15,448	1.6	59.0	1	504,263	58.7	60.0	1	243,070	6.5	64.2	1
.40– .49	329,558	33.4	97.7	7	299,597	31.6	91.9	5	337,640	35.4	94.4	7	243,635	28.4	88.4	4	913,598	24.4	88.6	5
.50– .59	18,435	1.8	99.5	2	54,271	5.7	97.6	3	29,177	3.1	97.5	1	61,585	7.2	95.6	4	368,069	9.8	98.4	4
.60– .69					22,770	2.4	100.0	3	16,590	1.7	99.2	2	9,724	1.1	96.7	1	33,672	.9	99.3	1
.70– .79									8,157	.8	100.0	1					26,772	.7	100.0	1
.80– .89													11,358	1.3	98.0	2				
.90– .99													17,393	2.0	100.0	1				
1.00– 1.09	4,684	.5	100.0	1																
Total	987,831	100.0	100.0	14	949,097	100.0	100.0	14	954,511	100.0	100.0	14	859,238	100.0	100.0	14	3,750,677	100.0	100.0	14
Average cost per ton	$0.33				$0.35				$0.37				$0.40				$0.37			

TABLE 63.—*Total revised f. o. b. mine cost, by quarterly and yearly periods for 1918, for 14 operators producing bituminous coal in Trinidad district of the State of Colorado.*

Per ton cost by $0.10 groupings.	January-March, 1918, inclusive.				April-June, 1918, inclusive.				July-September, 1918, inclusive.				October-December, 1918, inclusive.				Year, 1918.			
	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$1.30-$1.39									15,448	1.6	1.6	1								
1.80- 1.89	47,235	4.8	4.8	1																
1.90- 1.99					43,841	4.6	4.6	1									40,057	1.1	1.1	1
2.00- 2.09	75,465	7.6	12.4	1																
2.10- 2.19	718,993	72.8	85.2	2	717,845	75.6	80.2	3	244,197	25.6	27.2	2					858,138	22.9	24.0	2
2.20- 2.29	48,697	4.9	90.1	3	19,246	2.0	82.2	1	571,244	59.9	87.1	2	170,514	19.9	19.9	1	2,346,905	62.6	86.6	2
2.30- 2.39	45,295	4.6	94.7	2	101,918	10.8	93.0	3	29,177	3.1	90.2	1	504,253	58.7	78.6	1	193,378	5.1	91.7	2
2.40- 2.49	15,470	1.6	96.3	1					31,770	3.3	93.5	2	94,032	10.9	89.5	3				
2.50- 2.59													20,273	2.4	91.9	2	110,547	3.0	94.7	2
2.60- 2.69					14,626	1.5	94.5	1	27,424	2.9	96.4	2								
2.70- 2.79					24,535	2.6	97.1	2	8,157	.8	97.2	1	13,765	1.6	93.5	1	59,316	1.6	96.3	1
2.80- 2.89	18,435	1.8	98.1	2	17,100	1.8	98.9	2					9,724	1.1	94.6	1	81,892	2.1	98.4	2
2.90- 2.99									8,751	.9	98.1	1					33,672	.9	99.3	1
3.00- 3.09	13,557	1.4	99.5	1	9,986	1.1	100.0	1	10,504	1.1	99.2	1	6,189	.7	95.3	1	26,772	.7	100.0	1
3.10- 3.19													27,696	3.2	98.5	2				
3.20- 3.29													7,625	.9	99.4	1				
3.30- 3.39																				
3.40- 3.49									7,839	.8	100.0	1								
3.50- 3.59																				
3.60- 3.69	4,684	.5	100.0	1									5,167	.6	100.0	1				
Total	987,831	100.0	100.0	14	949,097	100.0	100.0	14	954,511	100.0	100.0	14	859,238	100.0	100.0	14	3,750,677	100.0	100.0	14
Average cost per ton	$2.15				$2.22				$2.24				$2.41				$2.25			

TABLE 64.—*Total sales realization, by quarterly and yearly periods for 1918, for 13 operators producing bituminous coal in Trinidad district of the State of Colorado.*

Per ton by $0.10 groupings.	January–March, 1918, inclusive.				April–June, 1918, inclusive.				July–September, 1918, inclusive.				October–December, 1918, inclusive.				Year, 1918.			
	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$2.20–$2.29	154,019	28.7	28.7	1	5,670	1.1	1.1	1	352,389	47.3	47.3	1								
2.30– 2.39	161,084	30.0	58.7	1	326,387	62.9	64.0	2					383,627	53.3	53.3	1	1,045,128	41.5	41.5	1
2.40– 2.49					14,595	2.8	66.8	1	203,031	27.3	74.6	2					687,946	27.3	68.8	1
2.50– 2.59	25,808	4.8	63.5	2	17,238	3.3	70.1	2	31,444	4.3	78.9	3	36,012	5.1	58.4	4	129,763	5.2	74.0	3
2.60– 2.69					23,584	4.5	74.6	2	59,290	7.9	86.8	1	237,165	32.9	91.3	4	47,470	1.9	75.9	1
2.70– 2.79	24,071	4.5	68.0	2	91,766	17.7	92.3	3	22,865	3.1	89.9	2					304,378	12.0	87.9	2
2.80– 2.89	92,446	17.3	85.3	2	39,926	7.7	100.0	2	37,859	5.1	95.0	1	45,638	6.3	97.6	2	33,672	1.3	89.2	1
2.90– 2.99									16,960	2.3	97.3	1	7,216	1.0	98.6	1	226,126	9.0	93.2	3
3.00– 3.09	13,557	2.5	87.8	1					10,402	1.3	98.6	1								
3.10– 3.19	65,687	12.2	100.0	4													46,220	1.8	100.0	1
3.20– 3.29									10,609	1.4	100.0	1								
3.30– 3.39													10,358	1.4	100.0	1				
Total	536,672	100.0	100.0	13	519,166	100.0	100.0	13	744,849	100.0	100.0	13	720,016	100.0	100.0	13	2,520,703	100.0	100.0	13
Average per ton	$2.54				$2.47				$2.44				$2.52				$2.49			

TABLE 65.—*Total revised labor cost, by quarterly and yearly periods for 1918, for 15 operators producing lignite coal in Lignite district of the State of Colorado.*

Per ton cost by $0.10 groupings.	January-March, 1918, inclusive.				April-June, 1918, inclusive.				July-September, 1918, inclusive.				October-December, 1918, inclusive.				Year, 1918.			
	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$1.00-$1.09	16,515	2.5	2.5	1	7,278	1.6	1.6	1												
1.10- 1.19	79,765	11.8	14.3	2	58,301	13.2	14.8	2	62,480	12.0	12.0	3	56,088	10.0	10.0	1	248,879	11.3	11.3	2
1.20- 1.29													31,824	5.7	15.7	2	45,658	2.1	13.4	1
1.30- 1.39	383,590	57.0	71.3	3					16,114	3.1	15.1	1	8,625	1.6	17.3	1	64,170	2.9	16.3	1
1.40- 1.49	37,637	5.6	76.9	1	264,151	59.6	74.4	2	105,733	20.4	35.5	2	122,722	22.0	39.3	2	1,252,193	57.1	73.4	2
1.50- 1.59	19,096	2.8	79.7	1					242,331	46.6	82.1	3	245,303	43.8	83.1	3	48,198	2.2	75.6	1
1.60- 1.69	70,166	10.4	90.1	2	18,103	4.1	78.5	2									110,831	5.0	80.6	1
1.70- 1.79	44,553	6.7	96.8	3	21,552	4.9	83.4	2					48,899	8.7	91.8	3	263,590	12.0	92.6	4
1.80- 1.89					38,073	8.6	92.0	2	26,996	5.2	87.3	1	24,038	4.3	96.1	1	78,485	3.6	96.2	1
1.90- 1.99					10,734	2.4	94.4	1	42,505	8.2	95.5	3								
2.00- 2.09	15,669	2.3	99.1	1	12,185	2.8	97.2	1	18,369	3.5	99.0	1								
2.10- 2.19					8,782	2.0	99.2	1									63,331	2.9	99.1	1
2.20- 2.29	6,385	.9	100.0	1									17,108	3.1	99.2	1				
2.30- 2.39					3,767	.8	100.0	1												
2.40- 2.49																	19,525	.9	100.0	1
2.50- 2.59													4,211	.8	100.0	1				
2.60- 2.69									5,162	1.0	100.0	1								
Total	673,376	100.0	100.0	15	442,926	100.0	100.0	15	519,740	100.0	100.0	15	558,818	100.0	100.0	15	2,194,860	100.0	100.0	15
Average cost per ton	$1.39				$1.52				$1.56				$1.50				$1.49			

TABLE 66.—*Total revised supply cost, by quarterly and yearly periods for 1918, for 15 operators producing lignite coal in Lignite district of the State of Colorado.*

Per ton cost by $0.10 groupings.	January-March, 1918, inclusive.				April-June, 1918, inclusive.				July-September, 1918, inclusive.				October-December, 1918, inclusive.				Year, 1918.			
	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$0.00-$0.09	23,277	3.5	3.5	2	5,616	1.3	1.3	1	10,359	2.0	2.0	1	8,625	1.6	1.6	1	70,074	3.2	3.2	2
.10- .19	524,292	77.9	81.4	6	149,566	33.7	35.0	6	79,702	15.3	17.3	5	162,727	29.2	30.8	6	537,981	26.3	30.0	3
.20- .29	125,807	18.6	100.0	7	213,935	48.3	83.3	2	321,627	61.9	79.2	4	327,661	58.6	89.4	5	1,478,126	67.3	97.3	9
.30- .39	.....	.....	.....	.....	56,760	12.8	96.1	4	82,392	15.8	95.0	3	43,976	7.8	97.2	2	58,729	2.7	100.0	1
.40- .49	.....	.....	.....	.....	8,782	2.0	98.1	1	11,822	2.3	97.3	1	15,829	2.8	100.0	1	.....	.....	.....	.....
.50- .59	.....	.....	.....	.....	8,267	1.9	100.0	1	13,838	2.7	100.0	1	.....	.....	.....	.....	.....	.....	.....	.....
Total	673,376	100.0	100.0	15	442,926	100.0	100.0	15	519,740	100.0	100.0	15	558,818	100.0	100.0	15	2,194,860	100.0	100.0	15
Average cost per ton	$0.18				$0.22				$0.24				$0.22				$0.21			

TABLE 67.—*Total revised general expenses, by quarterly and yearly periods for 1918, for 15 operators producing lignite coal in Lignite district of the State of Colorado.*

Per ton cost by $0.10 groupings.	January-March, 1918, inclusive.				April-June, 1918, inclusive.				July-September, 1918, inclusive.				October-December, 1918, inclusive.				Year, 1918.			
	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$0.20-$0.29	74,457	11.1	11.1	2	62,191	14.0	14.0	3	70,490	13.5	13.5	3	69,946	12.5	12.5	2	248,879	11.3	11.3	2
.30- .39	473,047	70.2	81.3	7	28,121	6.4	20.4	2	177,243	34.1	47.6	5	178,642	32.0	44.5	5	1,506,377	68.7	80.0	6
.40- .49	76,568	11.3	92.6	4	277,375	62.6	83.0	3	211,602	40.7	88.3	2	268,433	47.9	92.4	4	177,055	8.0	88.0	2
.50- .59	49,304	7.4	100.0	2	33,364	7.5	90.5	3	23,050	4.5	92.8	3	9,134	1.7	94.1	2	148,328	6.8	94.8	4
.60- .69					18,165	4.1	94.6	3	10,359	2.0	94.8	1								
.70- .79									26,996	5.2	100.0	1					114,221	5.2	100.0	1
.80- .89					23,710	5.4	100.0	1					32,663	5.9	100.0	2				
Total	673,376	100.0	100.0	15	442,926	100.0	100.0	15	519,740	100.0	100.0	15	558,818	100.0	100.0	15	2,194,860	100.0	100.0	15
Average cost per ton	$0.37				$0.45				$0.40				$0.41				$0.40			

TABLE 68.—*Total revised f. o. b. mine cost, by quarterly and yearly periods for 1918, for 15 operators producing lignite coal in Lignite district of the State of Colorado.*

Per ton cost by $0.10 groupings.	January-March, 1918, inclusive.				April-June, 1918, inclusive.				July-September, 1918, inclusive.				October-December, 1918, inclusive.				Year, 1918.			
	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$1.40-$1.49	74,457	11.1	11.1	2					12,968	2.5	2.5	1								
1.50- 1.59					45,077	10.2	10.2	1					13,858	2.5	2.5	1	248,879	11.3	11.3	2
1.60- 1.69					7,278	1.6	11.8	1	39,153	7.5	10.0	1	56,088	10.0	12.5	1				
1.70- 1.79	21,823	3.2	14.3	1	13,224	3.0	14.8	1												
1.80- 1.89	383,590	57.0	71.3	3					10,359	2.0	12.0	1	17,966	3.2	15.7	1	45,658	2.1	13.4	1
1.90- 1.99									16,114	3.1	15.1	1	122,722	22.0	37.7	2	434,316	19.8	33.2	2
2.00- 2.09	37,637	5.6	76.9	1	62,401	14.1	28.9	1	93,911	18.1	33.2	1					882,047	40.2	73.4	1
2.10- 2.19	19,096	2.8	79.7	1	201,750	45.5	74.4	1	35,701	6.8	40.0	1	229,474	41.0	78.7	2	48,198	2.2	75.6	1
2.20- 2.29	52,697	7.8	87.5	2	9,836	2.2	76.6	1	218,502	42.1	82.1	3	8,625	1.6	80.3	1	110,831	5.0	80.6	1
2.30- 2.39	62,022	9.3	96.8	3	5,616	1.3	77.9	1									90,640	4.1	84.7	2
2.40- 2.49					15,936	3.6	81.5	1					41,598	7.4	87.7	3	78,485	3.6	88.3	1
2.50- 2.59	15,669	2.3	99.1	1	25,097	5.6	87.1	2	18,369	3.5	85.6	1	23,130	4.1	91.8	1	58,729	2.7	91.0	1
2.60- 2.69					12,185	2.8	89.9	1	28,667	5.5	91.1	2					63,331	2.9	93.9	1
2.70- 2.79					8,267	1.9	91.8	1									114,221	5.2	99.1	1
2.80- 2.89													17,108	3.1	94.9	1				
2.90- 2.99	6,385	.9	100.0	1					26,996	5.2	96.3	1	24,038	4.3	99.2	1				
3.00- 3.09					23,710	5.4	97.2	1	13,838	2.7	99.0	1								
3.10- 3.19					3,767	.8	98.0	1									19,525	.9	100.0	1
3.20- 3.29					8,782	2.0	100.0	1					4,211	.8	100.0	1				
3.30- 3.39									5,162	1.0	100.0	1								
Total	673,376	100.0	100.0	15	442,926	100.0	100.0	15	519,740	100.0	100.0	15	558,818	100.0	100.0	15	2,194,860	100.0	100.0	15
Average cost per ton		$1.94				$2.19				$2.20				$2.13				$2.10		

TABLE 69.—*Total sales realization, by quarterly and yearly periods for 1918, for 15 operators producing lignite coal in Lignite district of the State of Colorado.*

Per ton by $0.10 groupings.	January-March, 1918, inclusive.				April-June, 1918, inclusive.				July-September, 1918, inclusive.				October-December, 1918, inclusive.				Year, 1918.			
	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$1.80-$1.89	12,718	1.9	1.9	1	9,886	2.2	2.2	1					13,822	2.5	2.5	1	48,196	2.2	2.2	1
1.90- 1.99					8,548	1.9	4.1	1					18,110	3.2	5.7	1				
2.00- 2.09									11,822	2.3	2.3	1	114,081	20.3	26.0	2				
2.10- 2.19	9,827	1.5	3.4	1	57,918	13.1	17.2	2	10,286	2.0	4.3	1	56,087	10.0	36.0	1	24,416	1.1	3.3	1
2.20- 2.29					5,616	1.3	18.5	1	65,288	12.7	17.0	3	41,490	7.3	43.3	2	306,801	13.9	17.2	3
2.30- 2.39	57,975	8.6	12.0	1	117,421	26.5	45.0	5	109,822	21.2	38.2	2					428,900	19.6	36.8	2
2.40- 2.49	138,894	20.0	32.0	3	213,955	48.2	93.2	2	39,751	7.7	45.9	2	220,886	39.4	82.7	2	50,619	2.3	39.1	1
2.50- 2.59	30,690	4.6	36.6	1	10,738	2.4	95.6	1	228,690	44.1	90.0	2	54,259	9.7	92.4	3	1,174,148	53.5	92.6	4
2.60- 2.69	345,076	51.3	87.9	4					18,340	3.5	93.5	1	17,217	3.1	95.5	1	63,490	2.9	95.5	1
2.70- 2.79	37,637	5.6	93.5	1	3,716	.8	96.4	1	28,339	5.5	99.0	2	21,076	3.8	99.3	1				
2.80- 2.89	15,773	2.3	95.8	1	15,908	3.6	100.0	1	5,212	1.0	100.0	1	4,210	.7	100.0	1	97,797	4.5	100.0	2
2.90- 2.99																				
3.00- 3.09	28,213	4.2	100.0	2																
Total	671,803	100.0	100.0	15	443,651	100.0	100.0	15	517,647	100.0	100.0	15	561,238	100.0	100.0	15	2,194,339	100.0	100.0	15
Average per ton		$2.60				$2.38				$2.47				$2.34				$2.46		

TABLE 70.—*Claimed labor, supplies, general expenses, and total f. o. b. mine cost for the year 1918, for 41 operators producing bituminous coal in Domestic district of the State of Colorado.*

Labor cost.					Supply cost.					General expenses.					Total f. o. b. mine cost.				
Per ton cost by $0.10 groupings.	Production tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Per ton cost by $0.10 groupings.	Production tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Per ton cost by $0.10 groupings.	Production tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Per ton cost by $0.10 groupings.	Production tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$1.20–$1.29	346,636	6.2	6.2	2	$0.00–$0.09	32,690	0.5	0.5	2	$0.00–$0.09	13,284	0.2	0.2	1	$1.40–$1.49	13,284	0.2	0.2	1
1.30– 1.39	153,880	2.7	8.9	2	.10– .19	312,028	5.6	6.1	3	.10– .19	333,352	6.0	6.2	1	1.60– 1.69	333,352	6.0	6.2	1
1.40– 1.49	1,166,999	20.9	29.8	8	.20– .29	1,331,873	23.9	30.0	11	.20– .29	78,119	1.4	7.6	2	1.80– 1.89	16,222	.3	6.5	1
1.50– 1.59	130,870	2.3	32.1	2	.30– .39	2,867,645	51.3	81.3	10	.30– .39	2,627,081	47.2	54.8	7	1.90– 1.99	153,880	2.7	9.2	2
1.60– 1.69	427,774	7.6	39.7	3	.40– .49	700,619	12.6	93.9	7	.40– .49	654,206	11.7	66.5	7	2.00– 2.09	245,432	4.4	13.6	2
1.70– 1.79	2,338,996	42.0	81.7	4	.50– .59	189,597	3.4	97.3	5	.50– .59	778,398	13.9	80.4	5	2.10– 2.19	327,023	5.9	19.5	2
1.80– 1.89	39,450	.7	82.4	1	.60– .69	151,599	2.7	100.0	3	.60– .69	510,529	9.1	89.5	9	2.20– 2.29	336,339	6.0	25.5	2
1.90– 1.99	295,012	5.3	87.7	6	.....	.....	.....	.....	.....	.70– .79	35,216	.6	90.1	1	2.30– 2.39	2,407,082	43.1	68.6	4
2.00– 2.09	381,943	6.9	94.6	3	.....	.....	.....	.....	.....	.80– .89	500,718	9.0	99.1	6	2.50– 2.59	262,270	4.7	73.3	2
2.10– 2.19	9,836	.2	94.8	1	.....	.....	.....	.....	.....	.90– .99	41,851	.7	99.8	1	2.60– 2.69	214,004	3.8	77.1	2
2.20– 2.29	44,852	.8	95.6	2	.....	.....	.....	.....	.....	1.00– 1.09	13,297	.2	100.0	1	2.70– 2.79	120,846	2.2	79.3	3
2.30– 2.39	84,508	1.5	97.1	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2.80– 2.89	315,687	5.7	85.0	4
2.40– 2.49	66,836	1.2	98.3	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3.00– 3.09	301,781	5.4	90.4	1
2.70– 2.79	53,613	.9	99.2	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3.10– 3.19	86,699	1.6	92.0	2
2.90– 2.99	13,297	.2	99.4	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3.20– 3.29	160,496	2.9	94.9	4
3.00– 3.09	31,549	.6	100.0	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3.40– 3.49	72,501	1.2	96.1	2
															3.50– 3.59	120,694	2.2	98.3	2
															3.70– 3.79	18,397	.3	98.6	1
															4.10– 4.19	66,765	1.2	99.8	2
															4.40– 4.49	13,297	.2	100.0	1
$1.70	5,586,051	100.0	100.0	41	$0.33	5,586,051	100.0	100.0	41	$0.44	5,586,051	100.0	100.0	41	$2.47	5,586,051	100.0	100.0	41

TABLE 71.—*Claimed labor, supplies, general expenses, and total f. o. b. mine cost for the year 1918, for 14 operators producing bituminous coal in Trinidad district of the State of Colorado.*

Labor cost.					Supply cost.					General expenses.					Total f. o. b. mine cost.				
Per ton cost by $0.10 groupings.	Production tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Per ton cost by $0.10 groupings.	Production tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Per ton cost by $0.10 groupings.	Production tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Per ton cost by $0.10 groupings.	Production tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$1.20-$1.29	40,057	1.1	1.1	1	$0.10-$0.19	132,784	3.5	3.5	1	$0.20-$0.29	61,661	1.6	1.6	1	$2.20-$2.29	3,231,498	84.7	84.7	5
1.40-1.49	860,216	22.6	23.7	2	.20-.29	1,237,893	32.4	35.9	6	.30-.39	2,225,057	58.3	59.9	2	2.30-2.39	334,124	8.8	93.5	3
1.50-1.59	245,847	6.4	30.1	1	.30-.39	2,446,298	64.1	100.0	7	.40-0.49	293,193	7.6	67.5	2	2.70-2.79	47,470	1.2	94.7	1
1.60-1.69	2,357,841	61.8	91.9	3	.....	.....	.....	.....	.....	.50-.59	912,917	24.0	91.5	3	2.80-2.89	86,368	2.3	97.0	2
1.70-1.79	47,470	1.2	93.1	1	.....	.....	.....	.....	.....	.60-.69	114,299	3.0	94.5	3	2.90-2.99	47,346	1.2	98.2	1
1.80-1.89	88,433	2.3	95.4	2	.....	.....	.....	.....	.....	.70-.79	175,308	4.6	99.1	2	3.00-3.09	35,629	.9	99.1	1
2.00-2.09	95,225	2.5	97.9	2	.....	.....	.....	.....	.....	.80-.89	34,540	.9	100.0	1	3.10-3.19	34,540	.9	100.0	1
2.10-2.19	81,886	2.1	100.0	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
$1.60	3,816,975	100.0	100.0	14	$0.29	3,816,975	100.0	100.0	14	$0.41	3,816,975	100.0	100.0	14	$2.30	3,816,975	100.0	100.0	14

TABLE 72.—*Claimed labor, supplies, general expenses, and total f. o. b. mine cost for the year 1918, for 15 operators producing lignite coal in Lignite district of the State of Colorado.*

Labor cost.					Supply cost.					General expenses.					Total f. o. b. mine cost.				
Per ton cost by $0.10 groupings.	Production tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Per ton cost by $0.10 groupings.	Production tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Per ton cost by $0.10 groupings.	Production tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Per ton cost by $0.10 groupings.	Production tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$1.00–$1.09	50,892	2.2	2.2	1	$0.10–$0.19	443,716	19.7	19.7	3	$0.20–$0.29	50,892	2.2	2.2	1	$1.60–$1.69	255,531	11.2	11.2	2
1.10–1.19	251,708	11.1	13.3	2	.20– .29	1,231,341	54.3	74.0	4	.30– .39	627,656	27.7	29.9	3	1.80–1.89	417,215	18.5	29.7	2
1.30–1.39	65,470	2.9	16.2	1	.30– .39	329,304	14.5	88.5	4	.40– .49	1,302,069	57.5	87.4	6	2.10–2.19	911,294	40.2	69.9	1
1.40–1.49	1,334,311	58.9	75.1	3	.40– .49	115,296	5.1	93.6	2	.50– .59	94,556	4.2	91.6	3	2.20–2.29	79,372	3.5	73.4	2
1.50–1.59	139,931	6.2	81.3	2	.50– .59	124,329	5.5	99.1	1	.70– .79	65,479	2.9	94.5	1	2.30–2.39	178,900	7.9	81.3	2
1.60–1.69	255,062	11.3	92.6	3	.60– .69	20,986	.9	100.0	1	.90– .99	124,329	5.5	100.0	1	2.40–2.49	68,308	3.0	84.3	1
1.70–1.79	82,096	3.6	96.2	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2.50–2.59	144,521	6.4	90.7	2
2.00–2.09	85,502	3.8	100.0	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2.70–2.79	64,516	2.9	93.6	1
	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3.00–3.09	124,329	5.5	99.1	1
	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3.30–3.39	20,986	.9	100.0	1
$1.44	2,264,972	100.0	100.0	15	$0.28	2,264,972	100.0	100.0	15	$0.45	2,264,972	100.0	100.0	15	$2.17	2,264,972	100.0	100.0	15

TABLE 73.—*Total revised labor cost, by quarterly and yearly periods for 1918, for 17 operators producing bituminous coal in the State of Montana.*

Per ton cost by $0.10 groupings.	January–March, 1918, inclusive.				April–June, 1918, inclusive.				July–September, 1918, inclusive.				October–December, 1918, inclusive.				Year 1918.			
	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$1.00–$1.09	6,552	0.6	0.6	1	29,340	3.1	3.1	1									23,458	0.6	0.6	1
1.10– 1.19					5,788	.6	3.7	1	5,590	0.5	0.5	1	5,528	0.5	0.5	1	103,060	2.5	3.1	1
1.20– 1.29	22,251	2.1	2.7	1					27,360	2.5	3.0	1	23,609	2.3	2.8	1				
1.30– 1.39																				
1.40– 1.49	61,095	5.8	8.5	3	49,549	5.2	8.9	1												
1.50– 1.59	177,096	16.9	25.4	1	147,070	15.4	24.3	1	201,432	18.4	21.4	2	193,878	18.7	21.5	2	811,614	19.6	22.7	2
1.60– 1.69									147,980	13.5	34.9	2								
1.70– 1.79	447,382	42.7	68.1	3	333,403	34.8	59.1	4	344,165	31.5	66.4	2	362,830	35.1	56.6	4	1,474,557	35.7	58.4	4
1.80– 1.89	108,762	10.3	78.4	2	106,643	11.2	70.3	2	233,581	21.4	87.8	3	200,869	19.4	76.0	2	743,900	18.0	76.4	3
1.90– 1.99					186,819	19.6	89.9	2	57,270	5.2	93.0	1	50,905	4.9	80.9	1	216,367	5.2	81.6	1
2.00– 2.09	53,806	5.1	83.5	1																
2.10– 2.19	131,815	12.6	96.1	2	54,386	5.7	95.6	1	41,326	3.8	96.8	2	7,455	.7	81.6	1	523,171	12.6	94.2	1
2.20– 2.29									15,937	1.5	98.3	1	37,255	3.6	85.2	1				
2.30– 2.39	11,833	1.1	97.2	1													49,688	1.2	95.4	1
2.40– 2.49													14,581	1.4	86.6	1	119,984	2.9	98.3	1
2.50– 2.59					9,742	1.0	96.6	1	12,285	1.1	99.4	1								
2.60– 2.69	25,535	2.4	99.6	1	7,337	.8	97.4	1									45,269	1.1	99.4	1
2.70– 2.79																				
2.80– 2.89																				
2.90– 2.99					18,990	2.0	99.4	1					121,552	11.7	98.3	1				
3.00– 3.09																				
3.10– 3.19									6,891	.6	100.0	1								
3.20– 3.29					5,451	.6	100.0	1					6,914	.7	99.0	1				
3.30– 3.39																	23,618	.6	100.0	1
3.40– 3.49													9,986	1.0	100.0	1				
3.50– 3.59																				
3.60– 3.69																				
3.70– 3.79	4,362	.4	100.0	1																
Total	1,050,489	100.0	100.0	17	955,018	100.0	100.0	17	1,093,817	100.0	100.0	17	1,035,362	100.0	100.0	17	4,134,686	100.0	100.0	17
Average cost per ton	$1.78				$1.80				$1.76				$1.81				$1.79			

TABLE 74.—*Total revised supply cost, by quarterly and yearly periods for 1918, for 17 operators producing bituminous coal in the State of Montana.*

Per ton cost by $0.10 groupings.	January-March, 1918, inclusive.				April-June, 1918, inclusive.				July-September, 1918, inclusive.				October-December, 1918, inclusive.				Year 1918.			
	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$0.00-$0.09	55,764	5.3	5.3	3	49,549	5.2	5.2	1	42,787	3.9	3.9	1	7,683	0.8	0.8	1	191,237	4.6	4.6	2
.10- .19	308,109	29.4	34.7	2	269,870	28.2	33.4	5	339,556	31.0	34.9	4	48,059	4.6	5.4	3	664,530	16.1	20.7	2
.20- .29	501,188	47.7	82.4	6	322,561	33.8	67.2	5	429,379	39.3	74.2	8	443,294	42.8	48.2	5	2,125,719	51.4	72.1	8
.30- .39	155,531	14.8	97.2	4	272,541	28.6	95.8	4	255,845	23.4	97.6	2	265,842	25.6	73.8	4	1,057,869	25.6	97.7	3
.40- .49	25,535	2.4	99.6	1	29,840	3.1	98.9	1	12,285	1.1	98.7	1	260,497	25.2	99.0	3	95,331	2.3	100.0	2
.50- .59									13,965	1.3	100.0	1	9,986	1.0	100.0	1				
.60- .69	4,362	.4	100.0	1	10,657	1.1	100.0	1												
Total	1,050,489	100.0	100.0	17	955,018	100.0	100.0	17	1,098,817	100.0	100.0	17	1,035,362	100.0	100.0	17	4,134,686	100.0	100.0	17
Average cost per ton	$0.23				$0.25				$0.24				$0.32				$0.25			

TABLE 75.—*Total revised general expenses, by quarterly and yearly periods for 1918, for 17 operators producing bituminous coal in the State of Montana.*

Per ton cost by $0.10 groupings.	January-March, 1918, inclusive.				April-June, 1918, inclusive.				July-September, 1918, inclusive.				October-December, 1918, inclusive.				Year 1918.			
	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$0.10-$0.19	537,017	51.2	51.2	3	502,313	52.6	52.6	3	526,890	48.2	48.2	3	499,851	48.3	48.3	3	2,069,364	50.0	50.0	3
.20- .29	390,183	37.1	88.3	9	354,500	37.1	89.7	7	363,677	33.2	81.4	6	310,269	30.0	78.3	6	1,364,018	33.0	83.0	7
.30- .39	107,094	10.2	98.5	3	22,908	2.3	92.0	3	190,769	17.5	98.9	6	218,328	21.0	99.3	7	677,686	16.4	99.4	6
.40- .49	11,833	1.1	99.6	1	43,519	4.6	96.6	1	5,590	.5	99.4	1	6,914	.7	100.0	1				
.50- .59					26,327	2.8	99.4	2									23,618	.6	100.0	1
.60- .69	4,362	.4	100.0	1	5,451	.6	100.0	1	6,891	.6	100.0	1								
Total	1,050,489	100.0	100.0	17	955,018	100.0	100.0	17	1,093,817	100.0	100.0	17	1,035,362	100.0	100.0	17	4,134,686	100.0	100.0	17
Average cost per ton	$0.21				$0.22				$0.21				$0.22				$0.22			

TABLE 76.—*Total revised f. o. b. mine cost, by quarterly and yearly periods for 1918, for 17 operators producing bituminous coal in the State of Montana.*

Per ton cost by $0.10 groupings.	January-March, 1918, inclusive.				April-June, 1918, inclusive.				July-September, 1918, inclusive.				October-December, 1918, inclusive.				Year, 1918.			
	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$1.40-$1.49	6,552	0.6	0.6	1																
1.50- 1.59					5,788	0.6	0.6	1									23,458	0.6	0.6	1
1.60- 1.69					29,840	3.1	3.7	1	5,590	0.5	0.5	1								
1.70- 1.79	205,970	19.6	20.2	3									5,528	0.5	0.5	1				
1.80- 1.89	42,589	4.1	24.3	1	196,619	20.6	24.3	2	186,005	17.0	17.5	2					744,132	18.0	18.6	2
1.90- 1.99									42,787	3.9	21.4	1	7,683	.8	1.3	1	170,542	4.1	22.7	1
2.00- 2.09	11,883	1.1	25.4	1					137,117	12.5	33.9	1	217,487	21.0	22.3	3	20,695	.5	23.2	1
2.10- 2.19	372,375	35.5	60.9	2					10,863	1.0	34.9	1	118,259	11.4	33.7	1				
2.20- 2.29					466,804	48.8	73.1	4	483,925	44.3	79.2	3					1,833,686	44.4	67.6	3
2.30- 2.39	183,769	17.5	78.4	3	9,899	1.0	74.1	1	57,270	5.2	84.4	1	301,945	29.2	62.9	2	37,018	.9	68.5	1
2.40- 2.49	53,806	5.1	83.5	1	95,986	10.1	84.2	1	79,856	7.3	91.7	1	186,717	18.0	80.9	3	543,425	13.1	81.6	3
2.50- 2.59					54,386	5.7	89.9	1												
2.60- 2.69	118,559	11.3	94.8	1					55,291	5.1	96.8	3					523,171	12.6	94.2	1
2.70- 2.79	13,256	1.3	96.1	1	54,176	5.7	95.6	2	15,937	1.5	98.3	1	44,710	4.3	85.2	2				
2.80- 2.89																				
2.90- 2.99																	119,984	2.9	97.1	1
3.00- 3.09	11,833	1.1	97.2	1													49,688	1.2	98.3	1
3.10- 3.19					9,742	1.0	96.6	1					14,581	1.4	86.6	1				
3.20- 3.29																				
3.30- 3.39	25,535	2.4	99.6	1					12,285	1.1	99.4	1					45,269	1.1	99.4	1
3.40- 3.49					7,337	.8	97.4	1												
3.50- 3.59													121,552	11.7	98.3	1				
3.60- 3.69																				
3.70- 3.79					18,990	2.0	99.4	1												
3.80- 3.89													6,914	0.7	99.0	1				
3.90- 3.99																				
4.00- 4.09					5,451	.6	100.0	1	6,891	.6	100.0	1								
4.10- 4.19																	23,618	.6	100.0	1
4.20- 4.29													9,986	1.0	100.0	1				
5.00- 5.09	4,362	.4	100.0	1																
Total	1,050,489	100.0	100.0	17	955,018	100.0	100.0	17	1,093,817	100.0	100.0	17	1,035,362	100.0	100.0	17	4,134,686	100.0	100.0	17
Average cost per ton		$2.22				$2.27				$2.21				$2.35				$2.26		

TABLE 77.—*Total sales realization, by quarterly and yearly periods for 1918, for 17 operators producing bituminous coal in the State of Montana.*

Per ton by $0.10 groupings.	January–March, 1918, inclusive.				April–June, 1918, inclusive.				July–September, 1918, inclusive.				October–December, 1918, inclusive.				Year, 1918.			
	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$1.70–$1.79					147,079	15.4	15.4	1												
1.80– 1.89	183,745	17.5	17.5	2	5,788	.6	16.0	1	164,213	15.0	15.0	2	5,528	0.5	0.5	1	664,616	16.1	16.1	2
1.90– 1.99					3,267	.3	16.3	1												
2.00– 2.09													158,263	15.3	15.8	1				
2.10– 2.19	6,623	.6	18.1	1																
2.20– 2.29	99,961	9.5	27.6	1	211,943	22.2	38.5	1												
2.30– 2.39	253,245	24.1	51.7	2	116,542	12.2	50.7	3	231,607	21.2	36.2	2	228,331	21.6	37.4	1	1,255,702	32.8	48.9	3
2.40– 2.49	42,612	4.1	55.8	1	49,742	5.2	55.9	1	53,438	4.9	41.1	2	161,331	15.5	52.9	3	207,564	5.0	53.9	2
2.50– 2.59	8,801	.8	56.6	1	29,840	3.1	59.0	1	115,680	10.6	51.7	1	21,240	2.1	55.0	2	50,062	1.2	55.1	1
2.60– 2.69	75,811	7.2	63.8	2	162,911	17.0	76.0	2	98,601	9.0	60.7	3	81,242	7.9	62.9	3	319,232	7.7	62.8	2
2.70– 2.79																				
2.80– 2.89					5,451	.6	76.6	1	137,117	12.5	73.2	1					498,679	12.1	74.9	1
2.90– 2.99	131,013	12.5	76.3	1	7,337	.8	77.4	1	22,823	2.1	75.3	2	136,336	13.2	76.1	2	23,618	.5	75.4	1
3.00– 3.09	118,559	11.3	87.6	1	172,032	18.0	95.4	3	139,760	12.8	88.1	1	121,552	11.7	87.8	1	572,859	13.9	89.3	2
3.10– 3.19									50,489	4.6	92.7	2					119,984	2.9	92.2	1
3.20– 3.29	25,535	2.4	90.0	1									47,241	4.6	92.4	2	45,269	1.1	93.3	1
3.30– 3.39	104,458	10.0	100.0	4					79,856	7.3	100.0	1	78,614	7.6	100.0	1	276,996	6.7	100.0	1
3.40– 3.49					43,519	4.6	100.0	1												
Total	1,050,363	100.0	100.0	17	955,451	100.0	100.0	17	1,093,589	100.0	100.0	17	1,035,178	100.0	100.0	17	4,134,581	100.0	100.0	17
Average per ton	$2.54				$2.47				$2.59				$2.61				$2.56			

TABLE 78.—*Claimed labor, supplies, general expenses, and total f. o. b. mine cost for the year 1918, for 17 operators producing bituminous coal in the State of Montana.*

Labor cost.					Supply cost.					General expenses.					Total f. o. b. mine cost.				
Per ton cost by $0.10 groupings.	Production tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Per ton cost by $0.10 groupings.	Production tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Per ton cost by $0.10 groupings.	Production tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Per ton cost by $0.10 groupings.	Production tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$1.00-$1.09	23,458	0.5	0.5	1	$0.00-$0.09	191,288	4.4	4.4	2	$0.10-$0.19	879,826	20.3	20.3	2	$1.50-$1.59	23,458	0.5	0.5	1
1.10- 1.19	104,653	2.4	2.9	1	.10- .19	23,458	.5	4.9	1	.20- .29	2,071,398	47.8	68.1	6	1.80- 1.89	663,180	15.3	15.8	1
1.50- 1.59	833,773	19.2	22.1	2	.20- .29	1,665,633	38.5	43.4	5	.30- .39	1,302,479	30.0	98.1	7	1.90- 1.99	170,593	3.9	19.7	1
1.60- 1.69	1,794,246	41.4	63.5	3	.30- .39	2,170,800	50.1	93.5	4	.40- .49	53,618	1.2	99.3	1	2.00- 2.09	20,695	.5	20.2	1
1.70- 1.79	547,671	12.7	76.2	4	.40- .49	130,733	3.0	96.5	3	.50- .59	28,730	.7	100.0	1	2.10- 2.19	104,653	2.4	22.6	1
1.90- 1.99	216,646	5.0	81.2	1	.50- .59	104,653	2.4	98.9	1	.....	.....	.....	.....	.....	2.00- 2.29	1,711,183	39.5	62.1	3
2.00- 2.09	549,966	12.7	93.9	1	.60- .69	49,486	1.1	100.0	1	.....	.....	.....	.....	.....	2.30- 2.39	37,276	.9	63.0	1
2.00- 2.19	188,523	4.3	98.2	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2.40- 2.49	739,923	17.1	80.1	2
2.40- 2.49	48,385	1.1	99.3	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2.70- 2.79	599,452	13.8	93.9	2
															2.80- 2.89	134,905	3.1	97.0	1
2.70- 2.79	28,730	.7	100.0	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3.00- 3.09	53,618	1.2	98.2	1
															3.10- 3.19	48,385	1.1	99.3	1
															3.70- 3.79	28,730	.7	100.0	1
$1.73	4,336,051	100.0	100.0	17	$0.31	4,336,051	100.0	100.0	17	$0.27	4,336,051	100.0	100.0	17	$2.31	4,336,051	100.0	100.0	17

TABLE 79.—*Total revised labor cost, by quarterly and yearly periods for 1918, for 18 operators producing bituminous or subbituminous coal in the State of Wyoming.*

Per ton cost by $0.10 groupings.	January-March, 1918, inclusive.				April-June, 1918, inclusive.				July-September, 1918, inclusive.				October-December, 1918, inclusive.				Year, 1918.			
	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$0.90-$0.99													87,032	4.0	4.0	1				
1.00- 1.09	306,251	12.9	12.9	3	44,903	2.3	2.3	1	172,301	7.9	7.9	2	152,394	7.0	11.0	1	726,640	8.3	8.3	2
1.10- 1.19	145,449	6.2	19.1	2	162,229	8.2	10.5	3	112,840	5.2	13.1	1	230,015	10.5	21.5	2	910,959	10.5	18.8	3
1.20- 1.29	1,090,101	46.1	65.2	4	75,792	3.8	14.3	1	208,113	9.5	22.6	3	32,220	1.5	23.0	1				
1.30- 1.39	227,560	9.6	74.8	1	941,761	47.3	61.6	3	25,555	1.2	23.8	1	104,811	4.7	27.7	2	3,727,167	42.8	61.6	3
1.40- 1.49	301,498	12.7	87.5	3	309,061	15.5	77.1	4	1,105,568	50.9	74.7	4	943,804	43.2	70.9	2	1,170,306	13.4	75.0	3
1.50- 1.59	71,198	3.0	90.5	2	50,561	2.6	79.7	1	254,934	11.8	86.5	3	141,820	6.4	77.3	3	1,019,050	11.6	86.6	3
1.60- 1.69					266,826	13.4	93.1	3	78,087	3.6	90.1	1	370,122	17.0	94.3	4	605,853	7.0	93.6	2
1.70- 1.79	70,136	3.0	93.5	1	88,346	4.4	97.5	1	159,127	7.3	97.4	2					328,585	3.8	97.4	1
1.80- 1.89	154,829	6.5	100.0	2									70,672	3.2	97.5	1				
1.90- 1.99					49,313	2.5	100.0	1									226,119	2.6	100.0	1
2.00- 2.09									55,331	2.6	100.0	1	54,119	2.5	100.0	1				
Total	2,367,022	100.0	100.0	18	1,988,792	100.0	100.0	18	2,171,856	100.0	100.0	18	2,187,009	100.0	100.0	18	8,714,679	100.0	100.0	18
Average cost per ton	$1.33				$1.41				$1.42				$1.43				$1.40			

TABLE 80.—*Total revised supply cost, by quarterly and yearly periods for 1918, for 18 operators producing bituminous or subbituminous coal in the State of Wyoming.*

Per ton cost by $0.10 groupings.	January-March, 1918, inclusive.				April-June, 1918, inclusive.				July-September, 1918, inclusive.				October-December, 1918, inclusive.				Year, 1918.			
	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$0.00-$0.09	188,303	7.9	7.9	2									87,032	4.0	4.0	1				
.10- .19	1,585,710	67.1	75.0	8	378,977	19.0	19.0	6	576,391	26.5	26.5	8	236,540	10.7	14.7	3	1,741,293	20.0	20.0	6
.20- .29	189,745	8.0	83.0	4	1,244,204	62.6	81.6	7	1,280,765	59.1	85.6	6	969,687	44.4	59.1	5	5,111,893	58.6	78.6	7
.30- .39	56,727	2.4	85.4	1	121,542	6.1	87.7	3	91,940	4.2	89.8	1	616,110	28.2	87.3	5	1,333,864	15.3	93.9	3
.40- .49	346,537	14.6	100.0	3	244,069	12.3	100.0	2	144,673	6.6	96.4	2	121,883	5.5	92.8	2	527,629	6.1	100.0	2
.50- .59									78,087	3.6	100.0	1	93,059	4.3	97.1	1				
.60- .69													62,698	2.9	100.0	1				
Total	2,367,022	100.0	100.0	18	1,988,792	100.0	100.0	18	2,171,856	100.0	100.0	18	2,187,009	100.0	100.0	18	8,714,679	100.0	100.0	18
Average cost per ton	$0.20				$0.24				$0.24				$0.29				$0.24			

TABLE 81.—*Total revised general expenses, by quarterly and yearly periods for 1918, for 18 operators producing bituminous or subbituminous coal in the State of Wyoming.*

Per ton cost by $0.10 groupings.	January-March, 1918, inclusive.				April-June, 1918, inclusive.				July-September, 1918, inclusive.				October-December, 1918, inclusive.				Year, 1918.			
	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$0.10-$0.19	1,209,213	51.1	51.1	3	978,176	49.2	49.2	2	1,112,369	51.2	51.2	4	1,232,353	56.5	56.5	5	4,296,181	49.2	49.2	3
.20- .29	569,125	24.1	75.2	8	449,448	22.5	71.7	7	477,717	21.9	73.1	6	286,898	13.0	69.5	4	2,117,900	24.3	73.5	7
.30- .39	504,136	21.2	96.4	5	317,300	16.0	87.7	3	504,737	23.4	95.5	7	469,418	21.4	90.9	5	1,683,842	19.4	92.9	5
.40- .49	84,548	3.6	100.0	2	230,054	11.6	99.3	5	77,033	3.5	100.0	1	198,340	9.1	100.0	4	616,756	7.1	100.0	3
.50- .59	.....	.....	.....	.....	13,814	0.7	100.0	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total	2,367,022	100.0	100.0	18	1,988,792	100.0	100.0	18	2,171,856	100.0	100.0	18	2,187,009	100.0	100.0	18	8,714,679	100.0	100.0	18
Average cost per ton	$0.21				$0.23				$0.22				$0.23				$0.22			

TABLE 82.—*Total revised f. o. b. mine cost, by quarterly and yearly periods for 1918, for 18 operators producing bituminous or subbituminous coal in the State of Wyoming.*

Per ton cost by $0.10 groupings.	January-March, 1918, inclusive.				April-June, 1918, inclusive.				July-September, 1918, inclusive.				October-December, 1918, inclusive.				Year, 1918.			
	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$1.20-$1.29	121,430	5.1	5.1	1									87,032	4.0	4.0	1				
1.30- 1.39	80,835	3.4	8.5	1					61,199	2.8	2.8	1					273,969	3.1	3.1	1
1.40- 1.49	103,986	4.4	12.9	1					223,942	10.3	13.1	2	108,249	4.9	8.9	1	380,208	4.4	7.5	1
1.50- 1.59	1,060,672	44.9	57.8	3	130,092	6.6	6.6	2					274,160	12.6	21.5	2	873,402	10.0	17.5	2
1.60- 1.69	147,057	6.2	64.0	2	979,851	49.3	55.9	3	116,173	5.3	18.4	2								
1.70- 1.79	172,560	7.3	71.3	1					834,870	38.4	56.8	2					3,405,948	39.1	56.6	2
1.80- 1.89	27,821	1.2	72.5	1	106,735	5.3	61.2	2	91,940	4.2	61.0	1	774,860	35.5	57.0	2	330,466	3.8	60.4	1
1.90- 1.99					199,100	10.0	71.2	3	166,653	7.7	68.7	2	24,899	1.1	58.1	1	1,034,489	11.8	72.2	4
2.00- 2.09	251,992	10.6	83.1	2	159,327	7.9	79.1	3	326,043	15.1	83.8	3	338,695	15.4	73.5	3				
2.10- 2.19									140,585	6.5	90.3	2	164,560	7.5	81.0	2	1,144,697	13.2	85.4	2
2.20- 2.29	333,313	14.1	97.2	5	254,074	12.8	91.9	2					118,834	5.4	86.4	2	439,528	5.0	90.4	2
2.30- 2.39					50,561	2.6	94.5	1									303,811	3.5	93.9	1
2.40- 2.49	67,356	2.8	100.0	1	59,739	3.0	97.5	1	78,087	3.6	93.9	1					302,042	3.5	97.4	1
2.50- 2.59					49,313	2.5	100.0	1	77,033	3.5	97.4	1	241,601	11.1	97.5	3	226,119	2.6	100.0	1
2.60- 2.69									55,331	2.6	100.0	1								
2.70- 2.79													54,119	2.5	100.0	1				
Total	2,367,022	100.0	100.0	18	1,988,792	100.0	100.0	18	2,171,856	100.0	100.0	18	2,187,009	100.0	100.0	18	8,714,679	100.0	100.0	18
Average cost per ton	$1.74				$1.88				$1.88				$1.95				$1.86			

TABLE 83.—*Total sales realization, by quarterly and yearly periods for 1918, for 18 operators producing bituminous or subbituminous coal in the State of Wyoming.*

Per ton by $0.10 groupings.	January–March, 1918, inclusive.				April–June, 1918, inclusive.				July–September, 1918, inclusive.				October–December, 1918, inclusive.				Year, 1918.			
	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$1.80–$1.89	914,954	38.7	38.7	1																
1.90–1.99					841,133	42.4	42.4	1	796,912	36.8	36.8	1								
2.00–2.09																	3,304,147	37.9	37.9	1
2.10–2.19	226,402	9.6	48.3	1	168,911	8.5	50.9	3					57,619	2.6	2.6	1				
2.20–2.29					63,226	3.2	54.1	1					32,220	1.5	4.1	1				
2.30–2.39	110,333	4.7	53.0	1	270,138	13.7	67.8	2	28,870	1.3	38.1	1					1,042,369	11.9	49.8	2
2.40–2.49	311,643	13.2	66.2	3	151,157	7.6	75.4	2	399,510	18.5	56.6	3	128,521	5.9	10.0	1	579,521	6.7	56.5	1
2.50–2.59	183,366	7.7	73.9	2									1,182,327	53.9	63.9	4	1,256,413	14.4	70.9	4
2.60–2.69					110,567	5.5	80.9	3	111,287	5.1	61.7	1	238,452	10.9	74.8	2	390,208	4.4	75.3	1
2.70–2.79	236,608	10.0	83.9	3	265,301	13.5	94.4	4	256,299	11.8	73.5	4	158,037	7.1	81.9	3	858,086	9.9	85.2	4
2.80–2.89	116,355	4.9	88.8	3					187,792	8.6	82.1	3	129,098	5.9	87.8	2	770,483	8.9	94.1	3
2.90–2.99	81,980	3.5	92.3	1					257,513	11.9	94.0	3	79,701	3.6	91.4	1				
3.00–3.09					49,280	2.5	96.9	1					48,128	2.2	93.6	1				
3.10–3.19	116,326	4.9	97.2	2					55,530	2.6	96.6	1	85,844	3.9	97.5	1	226,113	2.6	96.7	1
3.20–3.29	67,179	2.8	100.0	1	61,039	3.1	100.0	1	74,239	3.4	100.0	1	54,124	2.5	100.0	1	290,581	3.3	100.0	1
Total	2,365,146	100.0	100.0	18	1,980,752	100.0	100.0	18	2,167,952	100.0	100.0	18	2,194,071	100.0	100.0	18	8,707,921	100.0	100.0	18
Average per ton	$2.31				$2.21				$2.43				$2.63				$2.41			

TABLE 84.—*Claimed labor, supplies, general expenses, and total f. o. b. mine cost for the year 1918, for 18 operators producing bituminous or subbituminous coal in the State of Wyoming.*

Labor cost.					Supply cost.					General expenses.					Total f. o. b. mine cost.				
Per ton cost by $0.10 groupings.	Production tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Per ton cost by $0.10 groupings.	Production tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Per ton cost by $0.10 groupings.	Production tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Per ton cost by $0.10 groupings.	Production tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$1.00-$1.09	727,658	8.2	8.2	2	$0.10-$0.19	1,432,010	16.0	16.0	5	$0.10-$0.19	4,009,660	44.8	44.8	2	$1.40-$1.49	274,987	3.1	3.1	1
1.10- 1.19	923,699	10.3	18.5	3	.20- .29	4,414,311	49.3	65.3	5	.20- .29	857,044	9.6	54.4	3	1.50- 1.59	392,948	4.4	7.5	1
1.20- 1.29	336,922	3.8	22.3	1	.30- .39	1,418,580	15.9	81.2	4	.30- .39	3,292,677	36.8	91.2	9	1.60- 1.69	873,402	9.8	17.3	2
1.30- 1.39	4,551,905	50.8	73.1	4	.40- .49	1,059,336	11.8	93.0	2	.40- .49	790,154	8.8	100.0	4	1.70- 1.79	3,494,079	39.0	56.3	2
1.40- 1.49	752,775	8.4	81.5	2	.50- .59	625,298	7.0	100.0	2						1.80- 1.89	336,922	3.8	60.1	1
1.50- 1.59	751,028	8.4	89.9	3											1.90- 1.99	858,925	9.6	69.7	2
1.60- 1.69	663,432	7.4	97.3	2											2.00- 2.09	227,947	2.5	72.2	2
1.80- 1.89	242,116	2.7	100.0	1											2.10- 2.19	833,749	9.3	81.5	1
															2.20- 2.29	563,575	6.3	87.8	2
															2.30- 2.39	225,587	2.5	90.3	1
															2.40- 2.49	625,298	7.0	97.3	2
															2.60- 2.69	242,116	2.7	100.0	1
$1.36	8,949,535	100.0	100.0	18	$0.29	8,949,535	100.0	100.0	18	$0.24	8,949,535	100.0	100.0	18	$1.89	8,949,535	100.0	100.0	18

TABLE 85.—*Total revised labor cost, by quarterly and yearly periods for 1918, for 11 operators producing bituminous coal in the State of Utah.*

Per ton cost by $0.10 groupings.	January-March, 1918, inclusive.				April-June, 1918, inclusive.				July-September, 1918, inclusive.				October-December, 1918, inclusive.				Year, 1918.			
	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$1.10-$1.19	300,342	25.5	25.5	1	324,566	28.0	28.0	1												
1.20- 1.29									468,368	34.2	34.2	3					1,272,082	26.5	26.5	1
1.30- 1.39					36,575	3.1	31.1	1	118,297	8.6	42.8	1	296,413	27.1	27.1	1	113,490	2.4	28.9	1
1.40- 1.49	644,215	54.7	80.2	4	201,441	17.3	48.4	3	121,546	8.8	51.6	2	73,083	6.7	33.8	2	679,052	14.1	43.0	3
1.50- 1.59	147,456	12.5	92.7	2	470,696	40.5	88.9	1	504,423	36.9	88.5	1	133,700	12.2	46.0	2	2,228,666	46.4	89.4	2
1.60- 1.69	38,890	3.3	96.0	1	7,616	.7	89.6	1	49,894	3.7	92.2	2	488,139	44.6	90.6	2				
1.70- 1.79					86,628	7.5	97.1	1	5,824	.4	92.6	1	8,386	.8	91.4	1				
1.80- 1.89	34,094	2.9	98.9	1	7,659	.7	97.8	1	100,895	7.4	100.0	1					485,105	10.1	99.5	3
1.90- 1.99													5,727	.5	91.9	1				
2.00- 2.09					6,052	.5	98.3	1									23,286	.5	100.0	1
2.10- 2.19													21,500	2.0	93.9	1				
2.20- 2.29					19,614	1.7	100.0	1					67,422	6.1	100.0	1				
2.30- 2.39	12,200	1.1	100.0	2																
Total	1,177,197	100.0	100.0	11	1,160,867	100.0	100.0	11	1,369,247	100.0	100.0	11	1,094,370	100.0	100.0	11	4,801,681	100.0	100.00	11
Average cost per ton	$1.44				$1.44				$1.44				$1.60				$1.48			

TABLE 86.—*Total revised supply cost, by quarterly and yearly periods for 1918, for 11 operators producing bituminous coal in the State of Utah.*

Per ton cost by $0.10 groupings.	January–March, 1918, inclusive.				April–June, 1918, inclusive.				July–September, 1918, inclusive.				October–December, 1918, inclusive.				Year, 1918.			
	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$0.00–$0.09	82,539	7.0	7.0	1	86,628	7.5	7.5	1	100,895	7.4	7.4	1	67,422	6.1	6.1	1	337,484	7.0	7.0	1
.10– .19	393,970	33.5	40.5	3	421,947	36.4	43.9	3	278,391	20.3	27.7	4	30,577	2.8	8.9	1	464,478	9.7	16.7	2
.20– .29	67,383	5.7	46.2	2	95,953	8.2	52.1	3	350,741	25.6	53.3	1	78,883	7.2	16.1	2	1,574,426	32.8	49.5	3
.30– .39	587,998	49.9	96.1	3	484,364	41.7	93.8	3	546,007	39.9	93.2	2	885,541	81.0	97.1	6	2,115,290	44.1	93.6	3
.40– .49	38,890	3.3	99.4	1	71,975	6.2	100.0	1	93,213	6.8	100.0	3	31,947	2.9	100.0	1	310,003	6.4	100.0	2
.50– .59																				
.60– .69																				
.70– .79	6,517	.6	100.0	1																
Total	1,177,197	100.0	100.0	11	1,160,867	100.0	100.0	11	1,369,247	100.0	100.0	11	1,094,370	100.0	100.0	11	4,801,681	100.0	100.0	11
Average cost per ton	$0.25				$0.25				$0.26				$0.34				$0.27			

TABLE 87.—*Total revised general expenses, by quarterly and yearly periods for 1918, for 11 operators producing bituminous coal in the State of Utah.*

Per ton cost by $0.10 groupings.	January-March, 1918, inclusive.				April-June, 1918, inclusive.				July-September, 1918, inclusive.				October-December, 1918, inclusive.				Year, 1918.			
	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$0.20-$0.29	551,392	46.8	46.8	2	470,696	40.5	40.5	1	546,890	40.0	40.0	2	456,192	41.7	41.7	1	1,948,609	40.6	40.6	1
.30- .39	454,315	38.6	85.4	4	546,994	47.2	87.7	6	353,319	25.8	65.8	7	14,113	1.3	43.0	2	2,037,244	42.4	83.0	5
.40- .49	77,862	6.6	92.0	3	45,816	3.9	91.6	2	469,038	34.2	100.0	2	411,698	37.7	80.7	4	464,840	9.7	92.7	4
.50- .59	93,628	8.0	100.0	2	89,702	7.7	99.3	1					212,372	19.3	100.0	4	350,988	7.3	100.0	1
.60- .69																				
.70- .79																				
.80- .89					7,659	.7	100.0	1												
Total	1,177,197	100.0	100.0	11	1,160,867	100.0	100.0	11	1,369,247	100.0	100.0	11	1,094,370	100.0	100.0	11	4,801,681	100.0	100.0	11
Average cost per ton	$0.31				$0.32				$0.33				$0.39				$0.34			

TABLE 88.—*Total revised f. o. b. mine cost, by quarterly and yearly periods for 1918, for 11 operators producing bituminous coal in the State of Utah.*

Per ton cost by $0.10 groupings.	January-March, 1918, inclusive.				April-June, 1918, inclusive.				July-September, 1918, inclusive.				October-December, 1918, inclusive.				Year, 1918.			
	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$1.60-$1.69					324,586	28.0	28.0	1												
1.70- 1.79	300,342	25.5	25.5	1					117,627	8.6	8.6	2								
1.80- 1.89	82,539	7.0	32.5	1					350,741	25.6	34.2	1					1,272,082	26.5	26.5	1
1.90- 1.99									118,297	8.6	42.8	1					113,490	2.4	28.9	1
2.00- 2.09	517,298	43.9	76.4	1	212,905	18.3	46.3	3	42,467	3.1	45.9	1	30,577	2.8	2.8	1				
2.10- 2.19	33,289	2.8	79.2	1	510,460	43.9	90.2	2	646,902	47.3	93.2	3	296,413	27.1	29.9	1	2,965,145	61.7	90.6	5
2.20- 2.29	158,545	13.5	92.7	3	71,975	6.2	96.4	1	79,962	5.8	99.0	1	42,506	3.9	33.8	1	280,057	5.8	96.4	1
2.30- 2.39	34,094	2.9	95.6	1	7,616	0.7	97.1	1					527,781	48.3	82.1	3				
2.40- 2.49	38,890	3.3	98.9	1					7,427	0.6	99.6	1	70,497	6.4	88.5	1	117,675	2.5	98.9	1
2.50- 2.59									5,824	0.4	100.0	1	31,947	2.9	91.4	1				
2.60- 2.69													5,727	0.5	91.9	1	29,946	0.6	99.5	1
2.70- 2.79													67,422	6.1	98.0	1	23,286	0.5	100.0	1
2.80- 2.89					33,325	2.9	100.0	3												
2.90- 2.99																				
3.00- 3.09													21,500	2.0	100.0	1				
3.10- 3.19	5,683	0.5	99.4	1																
3.20- 3.29																				
3.30- 3.39																				
3.40- 3.49	6,517	0.6	100.0	1																
Total	1,177,197	100.0	100.0	11	1,160,867	100.0	100.0	11	1,369,247	100.0	100.0	11	1,094,370	100.0	100.0	11	4,801,681	100.0	100.0	11
Average cost per ton	$2.00				$2.01				$2.03				$2.33				$2.09			

TABLE 89.—*Total sales realization, by quarterly and yearly periods for 1918, for 11 operators producing bituminous coal in the State of Utah.*

Per ton by $0.10 groupings.	January–March, 1918, inclusive.				April–June, 1918, inclusive.				July–September, 1918, inclusive.				October–December, 1918, inclusive.				Year, 1918.			
	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$1.90–$1.99					10,024	1.0	1.0	1												
2.00– 2.09									8,499	0.7	0.7	1								
2.10– 2.19																				
2.20– 2.29																	28,607	0.7	0.7	1
2.30– 2.39	32,008	3.3	3.3	1																
2.40– 2.49	300,342	30.9	34.2	1									5,133	0.6	0.6	1				
2.50– 2.59					149,118	15.3	16.3	3									116,106	2.9	3.6	1
2.60– 2.69	408,079	42.0	76.2	3	324,117	33.1	49.4	2	42,467	3.5	4.2	1	63,517	6.9	7.5	2				
2.70– 2.79					416,610	42.6	92.0	3					605,202	66.0	73.5	3	3,022,769	74.4	78.0	4
2.80– 2.89	111,247	11.4	87.6	2	77,752	8.0	100.0	2	398,895	33.3	37.5	3	70,498	7.7	81.2	1	619,817	15.2	93.2	4
2.90– 2.99	39,594	4.1	91.7	2					296,139	24.8	62.3	4	173,338	18.8	100.0	4	277,426	6.8	100.0	1
3.00– 3.09	80,509	8.3	100.0	2					100,896	8.4	70.7	1								
3.10– 3.19									350,741	29.3	100.0	1								
Total	971,779	100.0	100.0	11	977,621	100.0	100.0	11	1,197,637	100.0	100.0	11	917,688	100.0	100.0	11	4,064,725	100.0	100.0	11
Average per ton	$2.63				$2.68				$2.96				$2.81				$2.78			

TABLE 90.—*Claimed labor, supplies, general expenses, and total f. o. b. mine cost for the year 1918, for 11 operators producing bituminous coal in the State of Utah.*

Labor cost.					Supply cost.					General expenses.					Total f. o. b. mine cost.				
Per ton cost by $0.10 groupings.	Production tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Per ton cost by $0.10 groupings.	Production tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Per ton cost by $0.10 groupings.	Production tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Per ton cost by $0.10 groupings.	Production tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$1.20-$1.29	1,272,082	26.0	26.0	1	$0.00-$0.09	342,169	7.0	7.0	1	$0.20-$0.29	2,027,360	41.4	41.4	1	$2.00-$2.09	1,387,125	28.4	28.4	2
1.30- 1.39	115,043	2.4	28.4	1	.10- .19	466,245	9.6	16.6	2	.30- .39	120,725	2.5	43.9	1	2.10- 2.19	2,378,562	48.6	77.0	2
1.40- 1.49	679,266	13.9	42.3	3	.20- .29	1,577,476	32.3	48.9	3	.40- .49	791,278	16.1	60.0	4	2.20- 2.29	328,064	6.7	83.7	2
1.50- 1.59	2,307,435	47.1	89.4	2	.30- .39	169,034	3.4	52.3	2	.50- .59	496,191	10.2	70.2	3	2.30- 2.39	342,169	7.0	90.7	1
1.80- 1.89	176,310	3.6	93.0	3	.40- .49	2,307,435	47.1	99.4	2	.60- .69	1,456,751	29.8	100.0	2	2.40- 2.49	400,800	8.2	98.9	2
1.90- 1.99	342,169	7.0	100.0	1	.60- .69	29,946	.6	100.0	1						2.50- 2.59	25,639	.5	99.4	1
															3.00- 3.09	29,946	.6	100.0	1
$1.46.	4,892,305	100.0	100.0	11	$0.30	4,892,305	100.0	100.0	11	$0.41	4,892,305	100.0	100.0	11	$2.17	4,892,305	100.0	100.0	11

TABLE 91.—*Total revised labor cost, by quarterly and yearly periods for 1918, for 9 operators producing bituminous coal in Pierce-King Bituminous district of the State of Washington.*

Per ton cost by $0.10 groupings.	January-March, 1918, inclusive.				April-June, 1918, inclusive.				July-September, 1918, inclusive.				October-December, 1918, inclusive.				Year, 1918.			
	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$2.00-$2.09									22,901	8.9	8.9	1								
2.10- 2.19					15,521	6.6	6.6	1												
2.20- 2.29									17,468	6.7	15.6	1					65,692	6.6	6.6	1
2.30- 2.39					5,707	2.4	9.0	1	9,095	3.5	19.1	1	64,250	26.1	26.1	4	87,595	8.7	15.3	2
2.40- 2.49	11,383	4.3	4.3	1	63,513	27.1	36.1	2	26,337	10.2	29.3	1								
2.50- 2.59	83,329	31.9	36.2	2					20,803	8.0	37.3	1					75,694	7.6	22.9	1
2.60- 2.69	115,859	44.3	80.5	1	6,908	3.0	39.1	1									210,628	21.0	43.9	1
2.70- 2.79	24,840	9.5	90.0	3	15,839	6.8	45.9	1												
2.80- 2.89					101,108	43.1	89.0	1	106,326	41.0	78.3	1	47,246	19.1	45.2	1	423,264	42.2	86.1	1
2.90- 2.99									44,501	17.2	95.5	1	121,072	49.0	94.2	2	90,466	9.0	95.1	1
3.00- 3.09																				
3.10- 3.19					21,921	9.3	98.3	1					6,035	2.4	96.6	1	23,466	2.4	97.5	1
3.20- 3.29	4,899	1.9	91.9	1																
3.30- 3.39	21,107	8.1	100.0	1																
3.40- 3.49																				
3.50- 3.59									5,624	2.2	97.7	1	8,325	3.4	100.0	1				
3.90- 3.99																	25,170	2.5	100.0	1
4.40- 4.49									5,996	2.3	100.0	1								
6.20- 6.29					4,062	1.7	100.0	1												
Total	261,417	100.0	100.0	9	234,579	100.0	100.0	9	259,051	100.0	100.0	9	246,928	100.0	100.0	9	1,001,975	100.0	100.0	9
Average cost per ton		$2.69				$2.76				$2.71				$2.82				$2.75		

TABLE 92.—*Total revised supply cost, by quarterly and yearly periods for 1918, for 9 operators producing bituminous coal in Pierce-King Bituminous district of the State of Washington.*

Per ton cost by $0.10 groupings.	January–March, 1918, inclusive.				April–June, 1918, inclusive.				July–September, 1918, inclusive.				October–December, 1918, inclusive.				Year, 1918.			
	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$0.10–$0.19	18,078	6.9	6.9	1					20,803	8.0	8.0	1								
.20– .29	4,899	1.9	8.8	1	15,839	6.8	6.8	1	49,238	19.1	27.1	2	39,423	16.0	16.0	2	75,694	7.6	7.6	1
.30– .39	127,242	48.6	57.4	2	34,536	14.7	21.5	3	9,095	3.5	30.6	1					89,158	9.0	16.6	2
.40– .49	6,787	2.6	60.0	1	170,259	72.6	94.1	3	129,418	49.9	80.5	3	130,833	53.0	69.0	4	601,325	59.9	76.5	4
.50– .59	74,072	28.4	88.4	2	9,883	4.2	98.3	1	44,501	17.2	97.7	1	68,347	27.6	96.6	2	210,628	21.0	97.5	1
.60– .69	30,339	11.6	100.0	2																
.70– .79																				
.80– .89																				
.90– .99																	25,170	2.5	100.0	1
1.00– 1.09													8,325	3.4	100.0	1				
1.10– 1.19																				
1.20– 1.29									5,996	2.3	100.0	1								
1.30– 1.39					4,062	1.7	100.0	1												
Total	261,417	100.0	100.0	9	234,579	100.0	100.0	9	259,051	100.0	100.0	9	246,928	100.0	100.0	9	1,001,975	100.0	100.0	9
Average cost per ton	$0.44				$0.43				$0.40				$0.45				$0.43			

TABLE 93.—*Total revised general expenses, by quarterly and yearly periods for 1918, for 9 operators producing bituminous coal in Pierce-King Bituminous district of the State of Washington.*

Per ton cost by $0.10 groupings.	January–March, 1918, inclusive.				April–June, 1918, inclusive.				July–September, 1918, inclusive.				October–December, 1918, inclusive.				Year, 1918.			
	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$0.30–$0.39	11,383	4.3	4.3	1																
.40– .49	199,188	76.2	80.5	3	116,947	49.9	49.9	2	29,898	11.5	11.5	2	50,970	20.6	20.6	3	534,038	53.3	53.3	3
.50– .59					53,630	22.9	72.8	1	173,032	66.8	78.3	4	99,971	40.5	61.1	1	301,094	30.0	83.3	2
.60– .69	21,107	8.1	88.6	1	50,057	21.3	94.1	4	44,501	17.2	95.5	1	89,952	36.5	97.6	4	118,207	11.8	95.1	2
.70– .79	6,787	2.6	91.2	1					5,996	2.3	97.8	1					25,170	2.5	97.6	1
.80– .89					9,883	4.2	98.3	1	5,624	2.2	100.0	1	6,035	2.4	100.0	1	23,466	2.4	100.0	1
.90– .99	14,131	5.4	96.6	2	4,062	1.7	100.0	1												
1.00– 1.09	8,821	3.4	100.0	1																
Total	261,417	100.0	100.0	9	234,579	100.0	100.0	9	259,051	100.0	100.0	9	246,928	100.0	100.0	9	1,001,975	100.0	100.0	9
Average cost per ton	$0.49				$0.56				$0.54				$0.58				$0.53			

TABLE 94.—*Total revised f. o. b. mine cost, by quarterly and yearly periods for 1918, for 9 operators producing bituminous coal in Pierce-King Bituminous district of the State of Washington.*

Per ton cost by $0.10 groupings.	January-March, 1918, inclusive.				April-June, 1918, inclusive.				July-September, 1918, inclusive.				October-December, 1918, inclusive.				Year, 1918.			
	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$2.80-$2.89									22,901	8.9	8.9	1								
2.90- 2.99																				
3.00- 3.09									29,898	11.5	20.4	2	20,974	8.5	8.5	1				
3.10- 3.19	11,383	4.3	4.3	1					17,468	6.7	27.1	1								
3.20- 3.29	18,078	6.9	11.2	1	15,521	6.6	6.6	1	26,337	10.2	37.3	1	18,449	7.5	16.0	1	176,466	17.7	17.7	3
3.30- 3.39													8,895	3.6	19.6	1				
3.40- 3.49	115,859	44.3	55.5	1	21,546	9.2	15.8	2					15,932	6.5	26.1	1				
3.50- 3.59	65,251	25.0	80.5	1	53,630	22.9	38.7	1									52,515	5.2	22.9	1
3.60- 3.69					6,908	3.0	41.7	1												
3.70- 3.79					110,991	47.3	89.0	2	106,326	41.0	78.3	1					633,892	63.2	86.1	2
3.80- 3.89																				
3.90- 3.99	6,787	2.6	83.1	1									121,072	49.0	75.1	2	90,466	9.0	95.1	1
4.00- 4.09													47,246	19.1	94.2	1				
4.10- 4.19					21,921	9.3	98.3	1	44,501	17.2	95.5	1								
4.20- 4.29	9,232	3.5	86.6	1																
4.30- 4.39	8,821	3.4	90.0	1													23,466	2.4	97.5	1
4.40- 4.49													6,035	2.4	96.6	1				
4.50- 4.59	26,006	10.0	100.0	2																
4.60- 4.69																				
4.70- 4.79																				
4.80- 4.89									5,624	2.2	97.7	1								
5.20- 5.29													8,325	3.4	100.0	1				
5.70- 5.79																	25,170	2.5	100.0	1
6.30- 6.39									5,996	2.3	100.0	1								
8.50- 8.59					4,062	1.7	100.0	1												
Total	261,417	100.0	100.0	9	234,579	100.0	100.0	9	259,051	100.0	100.0	9	246,928	100.0	100.0	9	1,001,975	100.0	100.0	9
Average cost per ton	$3.62				$3.75				$3.65				$3.85				$3.71			

TABLE 95.—*Total sales realization, by quarterly and yearly periods for 1918, for 9 operators producing bituminous coal in Pierce-King Bituminous district of the State of Washington.*

Per ton by $0.10 groupings.	January-March, 1918, inclusive.				April-June, 1918, inclusive.				July-September, 1918, inclusive.				October-December, 1918, inclusive.				Year, 1918.			
	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$3.30-$3.39	11,383	5.0	5.0	1	4,062	1.9	1.9	1					8,895	4.0	4.0	1				
3.40- 3.49									9,445	4.1	4.1	1					35,080	4.0	4.0	1
3.50- 3.59	6,787	3.0	8.0	1	20,878	10.0	11.9	2												
3.60- 3.69													15,932	7.2	11.2	1				
3.70- 3.79									25,102	10.9	15.0	2					25,170	2.8	6.8	1
3.80- 3.89																	51,380	5.8	12.6	1
3.90- 3.99									22,901	10.0	25.0	1					65,692	7.4	20.0	1
4.00- 4.09	8,821	3.9	11.9	1									8,325	3.7	14.9	1				
4.10- 4.19					13,466	6.5	18.4	2					18,449	8.3	23.2	1				
4.20- 4.29	25,852	11.5	23.4	2																
4.30- 4.39	115,508	51.1	74.5	1	50,750	24.4	42.8	1												
4.40- 4.49	56,394	25.0	99.5	2	117,743	56.5	99.3	2					99,658	45.0	68.2	1	422,129	47.7	67.7	1
4.50- 4.59									106,275	46.2	71.2	1					205,603	23.2	90.9	2
4.60- 4.69													5,946	2.7	70.9	1	74,757	8.5	99.4	1
4.70- 4.79									58,664	25.5	96.7	2								
4.80- 4.89													41,571	18.8	89.7	1				
4.90- 4.99													20,823	9.4	99.1	1				
5.00- 5.09									6,181	2.7	99.4	1								
5.50- 5.59													1,934	.9	100.0	1				
5.60- 5.69																				
5.70- 5.79																				
5.80- 5.89									1,303	.6	100.0	1								
5.90- 5.99																	5,679	.6	100.0	1
6.00- 6.09					1,366	.7	100.0	1												
6.50- 6.59	1,076	.5	100.0	1																
Total	225,821	100.0	100.0	9	208,265	100.0	100.0	9	229,871	100.0	100.0	9	221,533	100.0	100.0	9	885,490	100.0	100.0	9
Average per ton	$4.29				$4.29				$4.44				$4.43				$4.36			

TABLE 96.—*Total revised labor cost, by quarterly and yearly periods for 1918, for 7 operators producing subbituminous coal in Subbituminous district of the State of Washington.*

Per ton cost by $0.10 groupings.	January-March, 1918, inclusive.				April-June, 1918, inclusive.				July-September, 1918, inclusive.				October-December, 1918, inclusive.				Year, 1918.			
	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$1.20-$1.29	61,479	26.6	26.6	1	67,280	35.5	35.5	1	67,968	32.7	32.7	1	69,119	33.8	33.8	1	265,846	31.9	31.9	1
1.30- 1.39																				
1.40- 1.49									4,309	2.1	34.8	1								
1.50- 1.59																				
1.60- 1.69													5,179	2.5	36.3	1				
1.70- 1.79	24,303	10.5	37.1	2													12,996	1.6	33.5	1
1.80- 1.89																				
1.90- 1.99	2,182	1.0	38.1	1	13,606	7.2	42.7	1					16,637	8.1	44.4	1				
2.00- 2.09					2,394	1.3	44.0	1					3,728	1.8	46.2	1	71,394	8.5	42.0	2
2.10- 2.19					18,862	10.0	54.0	1	23,510	11.3	46.1	1					83,359	10.0	52.0	1
2.20- 2.29									2,716	1.3	47.4	1								
2.30- 2.39	24,350	10.5	48.6	1					12,128	5.9	53.3	1								
2.40- 2.49	118,640	51.4	100.0	2									12,519	6.1	52.3	1				
2.50- 2.59					11,065	5.8	59.8	1					19,352	9.5	61.8	1				
2.60- 2.69					74,776	39.5	99.3	1									399,311	48.0	100.0	2
2.70- 2.79					1,326	0.7	100.0	1	80,079	38.5	91.8	1								
2.80- 2.89																				
2.90- 2.99									17,077	8.2	100.0	1								
3.00- 3.09													78,322	38.2	100.0	1				
Total	230,954	100.0	100.0	7	189,309	100.0	100.0	7	207,787	100.0	100.0	7	204,856	100.0	100.0	7	832,906	100.0	100.0	7
Average cost per ton	$2.01				$2.02				$2.15				$2.22				$2.10			

TABLE 97.—*Total revised supply cost, by quarterly and yearly periods for 1918, for 7 operators producing subbituminous coal in Subbituminous district of the State of Washington.*

Per ton cost by $0.10 groupings.	January-March, 1918, inclusive.				April-June, 1918, inclusive.				July-September, 1918, inclusive.				October-December, 1918, inclusive.				Year, 1918.			
	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$0.00-$0.09	61,479	26.6	26.6	1	67,280	35.5	35.5	1	67,968	32.7	32.7	1								
.10- .19	21,287	9.2	35.8	1	13,606	7.2	42.7	1					69,119	33.8	33.8	1	265,846	31.9	31.9	1
.20- .29	27,366	11.8	47.6	2	2,394	1.3	44.0	1					16,247	7.9	41.7	2	71,394	8.5	40.4	2
.30- .39									14,844	7.2	39.9	2	5,179	2.5	44.2	1				
.40- .49	100,742	43.6	91.2	1	74,776	39.5	83.5	1	84,388	40.6	80.5	2	16,637	8.1	52.3	1	417,278	50.1	90.5	2
.50- .59					18,862	10.0	93.5	1	23,510	11.3	91.8	1	78,322	38.2	90.5	1				
.60- .69																	12,996	1.6	92.1	1
.70- .79																				
.80- .89																				
.90- .99	20,080	8.8	100.0	2																
1.00- 1.09																				
1.10- 1.19													19,352	9.5	100.0	1	65,392	7.9	100.0	1
1.20- 1.29									17,077	8.2	100.0	1								
1.30- 1.39																				
1.40- 1.49					11,065	5.8	99.3	1												
1.50- 1.59																				
1.60- 1.69					1,326	0.7	100.0	1												
Total	230,954	100.0	100.0	7	189,309	100.0	100.0	7	207,787	100.0	100.0	7	204,856	100.0	100.0	7	832,906	100.0	100.0	7
Average cost per ton	$0.35				$0.38				$0.41				$0.43				$0.39			

TABLE 98.—*Total revised general expenses, by quarterly and yearly periods for 1918, for 7 operators producing subbituminous coal in Subbituminous district of the State of Washington.*

Per ton cost by $0.10 groupings.	January-March, 1918, inclusive.				April-June, 1918, inclusive.				July-September, 1918, inclusive.				October-December, 1918, inclusive.				Year 1918.			
	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$0.10-$0.19	61,479	26.6	26.6	1	67,280	35.5	35.5	1	72,277	34.8	34.8	2	69,119	33.8	33.8	1	265,846	31.9	31.9	1
.20- .29	45,637	19.7	46.3	2	13,606	7.2	42.7	1									59,540	7.1	39.0	1
.30- .39	20,080	8.8	55.1	2	18,862	10.0	52.7	1	52,715	25.4	60.2	3	37,050	18.1	51.9	3	161,747	19.5	58.5	3
.40- .49	103,758	44.9	100.0	2	12,391	6.5	59.2	2					3,728	1.8	53.7	1				
.50- .59					77,170	40.8	100.0	2	82,795	39.8	100.0	2	16,637	8.1	61.8	1	345,773	41.5	100.0	2
.60- .69													78,322	38.2	100.0	1				
Total	230,954	100.0	100.0	7	189,309	100.0	100.0	7	207,787	100.0	100.0	7	204,856	100.0	100.0	7	832,906	100.0	100.0	7
Average cost per ton	$0.30				$0.33				$0.36				$0.37				$0.34			

TABLE 99.—*Total revised f. o. b. mine cost, by quarterly and yearly periods for 1918, for 7 operators producing subbituminous coal in Subbituminous district of the State of Washington.*

Per ton cost by $0.10 groupings.	January-March, 1918, inclusive.				April-June, 1918, inclusive.				July-September, 1918, inclusive.				October-December, 1918, inclusive.				Year 1918.			
	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Production (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$1.40-$1.49	61,479	26.6	26.6	1	67,280	35.5	35.5	1	67,968	32.7	32.7	1	69,119	33.8	33.8	1	265,846	31.9	31.9	1
2.00- 2.09									4,309	2.1	34.8	1								
2.10- 2.19	21,287	9.2	35.8	1																
2.20- 2.29																				
2.30- 2.39													5,179	2.5	36.3	1				
2.40- 2.49	3,016	1.3	37.1	1	13,606	7.2	42.7	1												
2.50- 2.59																	59,540	7.1	39.0	1
2.60- 2.69																	12,996	1.6	40.6	1
2.70- 2.79													3,728	1.8	38.1	1	11,854	1.4	42.0	1
2.80- 2.89	24,350	10.5	47.6	1									16,637	8.1	46.2	1				
2.90- 2.99					2,394	1.3	44.0	1	12,128	5.9	40.7	1					83,359	10.0	52.0	1
3.00- 3.09					18,862	10.0	54.0	1	23,510	11.3	52.0	1	12,519	6.1	52.3	1				
3.10- 3.19									2,716	1.3	53.3	1								
3.20- 3.29																				
3.30- 3.39	102,924	44.6	92.2	2																
3.40- 3.49																				
3.50- 3.59					74,776	39.5	93.5	1												
3.60- 3.69	17,898	7.8	100.0	1																
3.70- 3.79																	333,919	40.1	92.1	1
3.80- 3.89									80,079	38.5	91.8	1								
3.90- 3.99																				
4.00- 4.09													19,352	9.5	61.8	1				
4.10- 4.19																	65,392	7.9	100.0	1
4.20- 4.29													78,322	38.2	100.0	1				
4.30- 4.39					11,065	5.8	99.3	1												
4.40- 4.49																				
4.50- 4.59									17,077	8.2	100.0	1								
4.60- 4.69																				
4.70- 4.79					1,326	.7	100.0	1												
Total	230,954	100.0	100.0	7	189,309	100.0	100.0	7	207,787	100.0	100.0	7	204,856	100.0	100.0	7	832,906	100.0	100.0	7
Average cost per ton	$2.66				$2.73				$2.92				$3.02				$2.83			

TABLE 100.—*Total sales realization, by quarterly and yearly periods for 1918, for 7 operators producing subbituminous coal in Subbituminous district of the State of Washington.*

Per ton by $0.10 groupings.	January-March, 1918, inclusive.				April-June, 1918, inclusive.				July-September, 1918, inclusive.				October-December, 1918, inclusive.				Year, 1918.			
	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Sales tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$1.80-$1.89									67,968	32.7	32.7	1								
1.90- 1.99					67,280	36.6	36.6	1					69,119	33.7	33.7	1	265,846	32.3	32.3	1
2.00- 2.09	63,661	27.9	27.9	2																
2.10- 2.19					1,326	0.7	37.3	1												
2.20- 2.29									4,309	2.1	34.8	1					12,996	1.6	33.9	1
2.30- 2.39													5,179	2.5	36.2	1				
2.90- 2.99									12,235	5.9	40.7	1								
3.00- 3.09	21,144	9.3	37.2	1	13,725	7.5	44.8	1					13,484	6.6	42.8	1	60,588	7.3	41.2	1
3.10- 3.19													3,728	1.8	44.6	1				
3.20- 3.29					2,394	1.3	46.1	1									11,636	1.4	42.6	1
3.30- 3.39									23,567	11.4	52.1	1								
3.40- 3.49	26,865	11.7	48.9	2	18,330	10.0	56.1	1	2,716	1.3	53.4	1								
3.50- 3.59																	82,611	10.0	52.6	1
3.60- 3.69																				
3.70- 3.79																				
3.80- 3.89													16,647	8.1	52.7	1				
3.90- 3.99									79,589	38.3	91.7	1								
4.00- 4.09	17,283	7.6	56.5	1									78,177	38.0	90.7	1	326,296	39.6	92.2	1
4.10- 4.19	99,144	43.5	100.0	1	69,336	37.8	93.9	1												
4.20- 4.29																				
4.30- 4.39																				
4.40- 4.49																	64,851	7.8	100.0	1
4.50- 4.59					11,265	6.1	100.0	1												
4.60- 4.69									17,288	8.3	100.0	1	19,015	9.3	100.0	1				
Total	228,097	100.0	100.0	7	183,706	100.0	100.0	7	207,672	100.0	100.0	7	205,349	100.0	100.0	7	824,824	100.0	100.0	7
Average per ton	$3.37				$3.17				$3.16				$3.23				$3.24			

TABLE 101.—*Claimed labor, supplies, general expenses, and total f. o. b. mine cost for the year 1918, for 9 operators producing bituminous coal in Pierce-King Bituminous district of the State of Washington.*

Labor cost.					Supply cost.					General expenses.					Total f. o. b. mine cost.				
Per ton cost by $0.10 groupings.	Production tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Per ton cost by $0.10 groupings.	Production tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Per ton cost by $0.10 groupings.	Production tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Per ton cost by $0.10 groupings.	Production tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$2.00-$2.09	72,094	6.9	6.9	1	$0.30-$0.39	78,506	7.5	7.5	1	$0.50-$0.59	35,080	3.4	3.4	1	$3.30-$3.39	35,080	3.4	3.4	1
2.30- 2.39	87,595	8.4	15.3	2	.40- .49	273,620	26.3	33.8	5	.60- .69	439,524	42.3	45.7	1	3.40- 3.49	72,094	6.9	10.3	1
2.40- 2.49	78,506	7.5	22.8	1	.50- .59	221,303	21.3	55.1	1	.80- .89	27,321	2.6	48.3	1	3.70- 3.79	78,506	7.5	17.8	1
2.50- 2.59	221,303	21.3	44.1	1	.70- .79	439,524	42.3	97.4	1	.90- .99	317,046	30.4	78.7	5	3.80- 3.89	52,515	5.0	22.8	1
2.70- 2.79	439,524	42.3	86.4	1	1.10- 1.19	27,321	2.6	100.0	1	1.00- 1.09	221,303	21.3	100.0	1	4.10- 4.19	660,827	63.6	86.4	2
2.90- 2.99	90,466	8.7	95.1	1											4.30- 4.39	90,466	8.7	95.1	1
3.10- 3.19	23,465	2.3	97.4	1											4.40- 4.49	23,465	2.3	97.4	1
3.50- 3.59	27,321	2.6	100.0	1											5.50- 5.59	27,321	2.6	100.0	1
$2.64	1,040,274	100.0	100.0	9	$0.62	1,040,274	100.0	100.0	9	$0.82	1,040,274	100.0	100.0	9	$4.08	1,040,274	100.0	100.0	9

TABLE 102.—*Claimed labor, supplies, general expenses, and total f. o. b. mine cost for the year 1918, for operators producing subbituminous coal in Subbituminous district of the State of Washington.*

Labor cost.					Supply cost.					General expenses.					Total f. o. b. mine cost.				
Per ton cost by $0.10 groupings.	Production tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Per ton cost by $0.10 groupings.	Production tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Per ton cost by $0.10 groupings.	Production tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.	Per ton cost by $0.10 groupings.	Producton tonnage (net tons).	Per cent of total.	Accumulated per cent.	Number of operators by $0.10 groupings.
$1.20–$1.29	270,669	30.1	30.1	1	$0.10–$0.19	270,669	30.1	30.1	1	$0.10–$0.19	270,669	30.1	30.1	1	$1.40–$1.49	270,669	30.1	30.1	1
1.40– 1.49	15,473	1.7	31.8	1	.30– .39	83,359	9.3	39.4	1	.20– .29	15,473	1.7	31.8	1	2.20– 2.29	15,473	1.7	31.8	1
1.80– 1.89	12,664	1.4	33.2	1	.40– .49	64,483	7.2	46.6	1	.30– .39	64,483	7.2	39.0	1	2.60– 2.69	64,483	7.2	39.0	1
1.90– 1.99	64,483	7.2	40.4	1	.50– .59	28,137	3.1	49.7	2	.40– .49	83,359	9.3	48.3	1	3.00– 3.09	96,023	10.7	49.7	2
2.20– 2.29	83,359	9.3	49.7	1	.70– .79	387,889	43.1	92.8	1	.50– .59	387,889	43.1	91.4	1	3.50– 3.59	387,889	43.1	92.8	1
2.30– 2.39	387,889	43.1	92.8	1	1.10– 1.19	65,392	7.2	100.0	1	.60– .69	12,664	1.4	92.8	1	4.50– 4.59	65,392	7.2	100.0	1
2.60– 2.69	65,392	7.2	100.0	1	.....	.....	.....	.....	.....	.80– .89	65,392	7.2	100.0	1	.....	.....	.....	.....	.....
$1.95	899,929	100.0	100.0	7	$0.51	899,929	100.0	100.0	7	$0.39	899,929	100.0	100.0	7	$2.85	899,929	100.0	100.0	7